

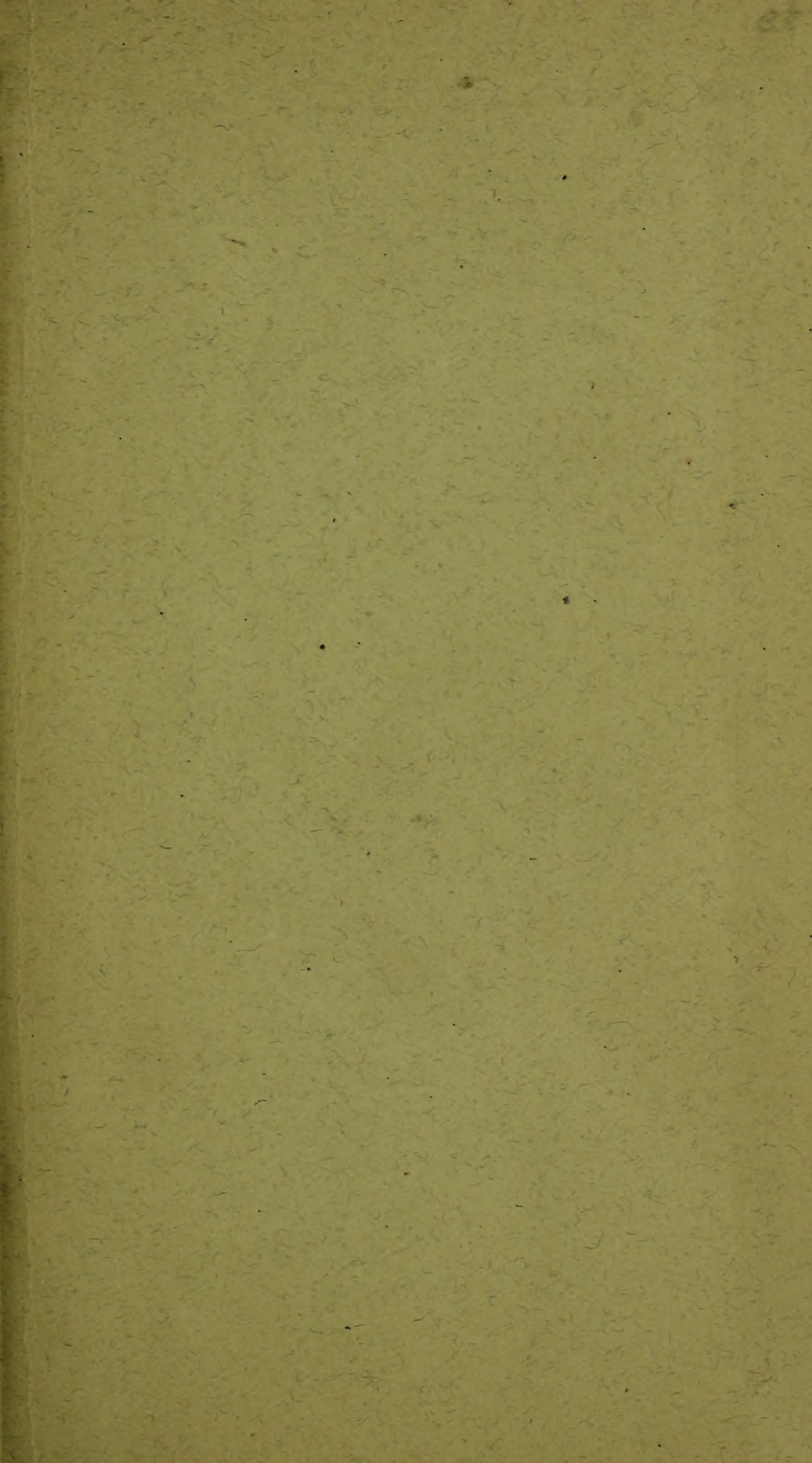
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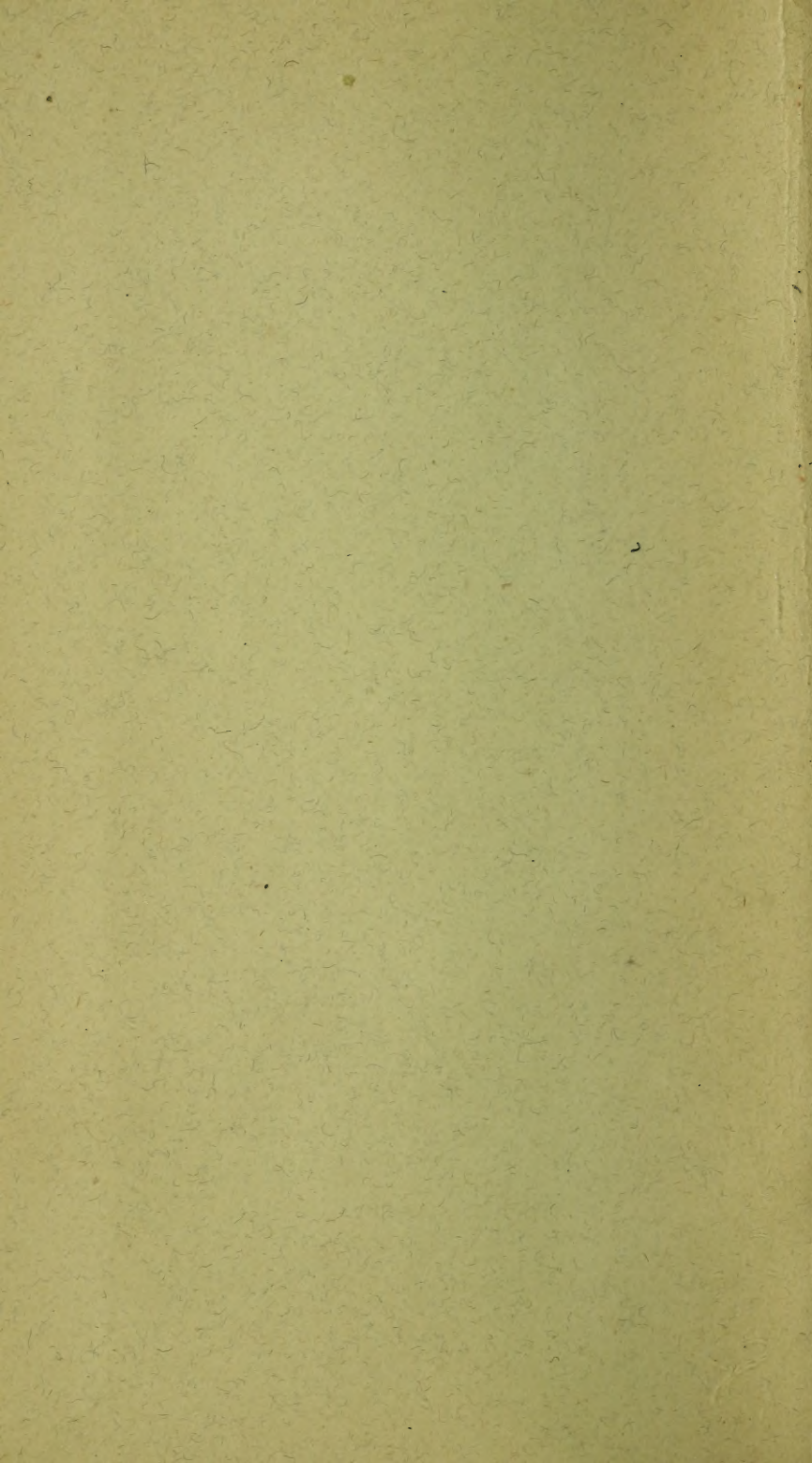


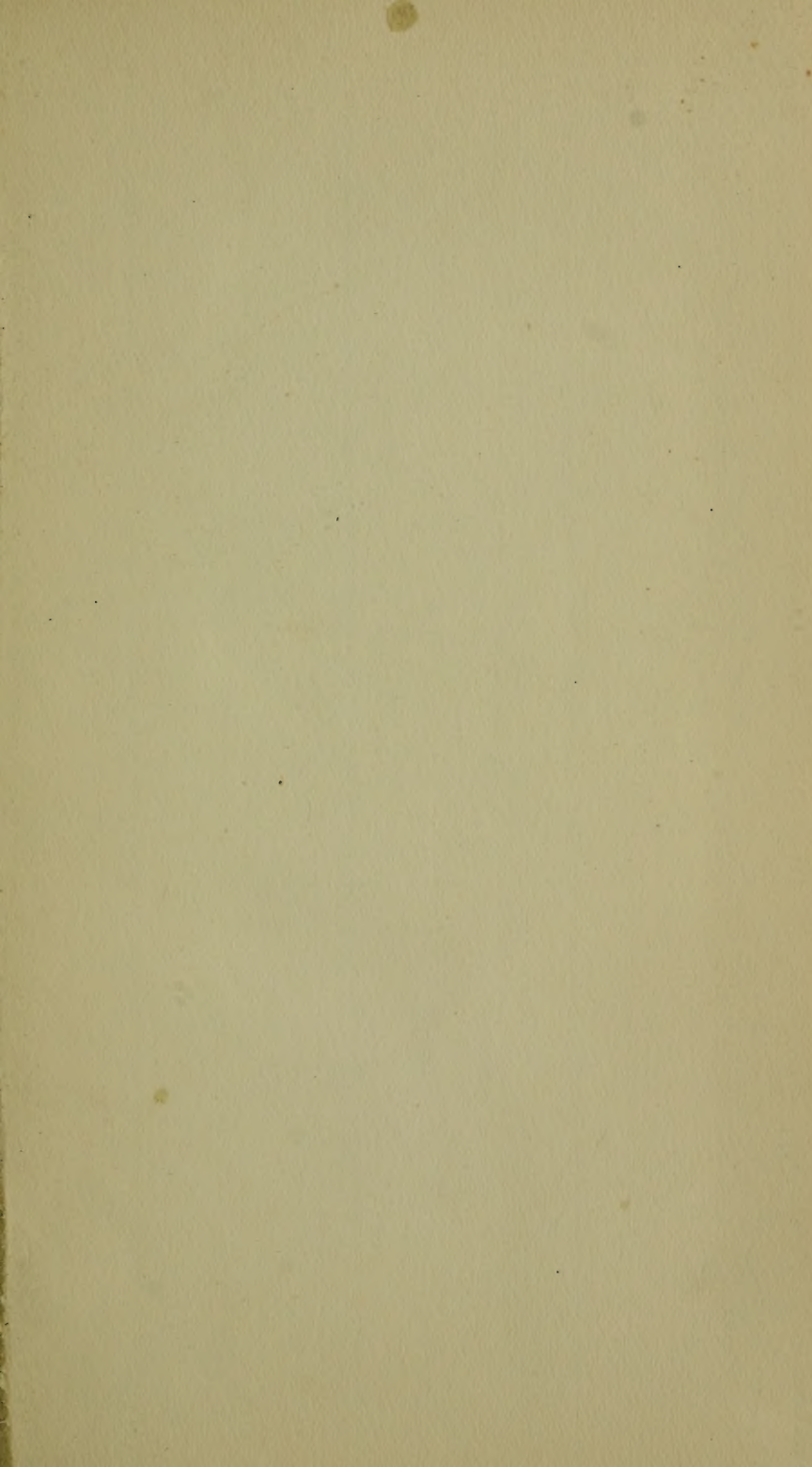
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ROYAL N. S. I. Academy
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CATALOGUE

OF THE

M O L L U S C A

IN

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THE COLLECTION

cg

OF THE

BRITISH MUSEUM.

PART I.

-2

CEPHALOPODA ANTEPEDIA.

John Edward Gray

PRINTED BY ORDER OF THE TRUSTEES.

LONDON: 1849.

Am

MUSEUM

LONDON:
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New-street-Square.

P R E F A C E .

THE chief objects in forming the present Synoptical Catalogue have been, to exhibit at one view a complete list of all the specimens of MOLLUSCA at present in the British Museum collection, and to furnish such an account of the species known to exist in other collections, but which are at present desiderata in the British Museum, as the materials at hand would permit me to compile, in order to enable travellers, collectors, and others, to assist in completing the national collection.

For this purpose, short descriptions have been given of all the genera and species of recent Mollusca at present known to exist in the different museums and private collections, and of the better-known fossil species of the various families.

At the end of each description is added an enumeration stating the state, age, country, or strata, and other peculiarities, of each specimen of the kind in the Museum collection; and, when the species is not at present in that collection, the museum in which it has been observed is often added after the general habitat or locality of the species. The different individuals of each species contained in the British Museum collection are indicated by the letters *a*, *b*, *c*, &c.

Those specimens which have been presented to the Museum have the name of the donor marked immediately after the

habitat. When there is no such indication, the specimens have been either purchased, or procured in exchange; and in this case, whenever the place or person from whom they have been received gives authenticity to the specimens, or adds any thing to their history, they are noted as being from such and such a collection or locality. Great attention has been paid to dates, and the generic and specific names which appear to possess priority in this respect have been adopted. Reference has also been made to the works in which the genera and species appear to have been first described or noticed.

Catalogues like the present can be little more than compilations, and I have freely availed myself of the labours of my predecessors in the same field; especially of those who have published monographs of the different groups: but the characters of the orders, families, minor groups, and species, have been compared and revised with the specimens. In this Part great use has been made of the researches of M. D'Orbigny, who, with the late Baron Férussac, has been for many years engaged in the study of these animals; and their works may be considered as the basis of this Part of the Catalogue.

J. E. GRAY.

12th February, 1849.

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INTRODUCTION.

SUB-KINGDOM III. MOLLUSCA.

Body soft, fleshy, destitute both of any bony skeleton supporting jointed limbs, and of a hard ringed skin, or external skeleton. Generally elongate, walking on a single central foot or disk, and furnished with one or more pairs of organs on the head and sides. The nervous system consists of a number of medullary masses distributed to different parts of the body; one of the masses placed over the gullet, and enveloping it like a collar.

The body is furnished with a muscular coat, called a mantle, endued with a glairy humour, and generally furnished with a calcareous envelope called a shell, secreted by the mantle, and protecting the body, or the more vital organs of the animal.

There is generally a mantle on each side of the body, each furnished with a shell; but the shells on the two sides are often very differently sized, that on one of the sides is in some only rudimentary, and in others they both are wanting in the adult. Some animals which have two unequal valves in the foetal, or very young, state, lose them when they grow up.

Mollia (sect. A. Exanguium) *Androv. de Moll.* 1618; not *Eichw.*

Mollusca seu Mollia (genus Exanguium) *Jonston, de Exang.* 1650.

Malacoderma *Rondel. Exang.*

Mollusca (ordo Vermium) *Linn. S. N.* ed. 10. 641. 652. 1758, ed. 12.; *Müller, Z. Dam. Prod.* 28. 1776; *Brug. E. M.* 1789.

Mollusca *Poli, Test. Sicul.* i. 25. 1791 (exclus. *Cirripodes*); *Cuvier, Tab. Elém.* 1798, *Anat. Comp.* 1800, *Règ. Anim.* ii. 1817, ed. 2. 1830 (excl. *Cirrhopoda*); *Lamck. Syst.* 50. 1801, *Phil. Zool.* i. 315. 1809; *Schwieger, Naturg.* 187. 612. 689. 1820.

Mollusca pars (Testacea) *Swainson, Malac.* 4, 5. 1840.

Mollusca and Conchifera *Lamck. Hist.* vi. 259. 1819.

Molluscitæ *Schloth. Petref.* 45. 1820.

Therozoa *Eichwald, Zool. Special.* i. 258. 1829.

Pænulata *Latr.*

Gangliata (Mollusca) *Fleming, Brit. Anim.* 224. 1828.

- Ganglioneura *Rudolphi*, *Beitr. z. Anthropol.* 1812.
 Malacosia *Rafinesque*, *Anal. Nat.* 40. 1815.
 Apalosia *Rafinesque*, *Préc. Som.* 12. 1814.; *Anal. Nat.* 137. 1815.
 Brachiopneusta *Fischer*.
 Malacozoa (Les Malacozoaires) *Blainv. Journ. Phys.* 1816; *Man. Malac.* 362. 1825; *Bronn, Gesch. de Nat.* iii. 1847.
 Malacozoaria *Blainv. Dict. Sci. Nat.* xxxii. 171. 1824.
 Gasterozoa *Carus, Ueber Thierr.* 1826; *Oken, His.* 1828.
 Dermatozoa *Fitzinger, Syst. Rept.* 8. 1843.
 Mollusques or Malacozoaires *Blainv. Bull. Soc. Philom.* 1816, 12. 2.
 Mollusca or Cyclogangliata *Grant, Outlines, Lectures*, 1833, 17.

Synopsis of the Classes.

A. *Animal crawling on a Foot placed under the Body.*—Pedifera.

I. GASTEROPODA (*Gasteropodes*). Head distinct, furnished with eyes and tentacles, and usually protected by one large conical valve, the other being rudimentary or abortive.

II. CONCHIFERA (*Conchifers*). Mouth placed between the gills; they and the body being enclosed between the two large leaves of the mantle, which are covered with two equal or subequal valves, united along the back by a cartilage.

B. *Animal destitute of a Foot, or with only a rudimentary one.*—Apoda.

III. BRACHIOPODA (*Brachiopodes*). Mouth placed at the base of two spirally twisted ciliated arms, between the two leaves of the mantle, which are covered with two separate shelly valves. They live attached to other marine bodies.

IV. PTEROPODA (*Pteropodes*). Head prominent, with one or two pairs of fins on the side of the neck, by which they move about in the ocean. Body often covered with a thin, glossy, conoidal shell.

V. CEPHALOPODA (*Cephalopodes*). Head large, distinct, furnished with eight or ten or more arms, by means of which they head downwards.

CATALOGUE

OF

C E P H A L O P O D A.

CLASS IV. CEPHALOPODA.

Head large, separate from the body. Eyes large, complex, lateral. Ears developed. Mouth armed with two horny or shelly jaws, edged with fleshy lips, and surrounded by eight or ten fleshy arms, or numerous tentacles; and furnished with an entire or slit tube, or *siphuncle*, used in locomotion.

Body ovate, roundish, or cylindrical, open in front, containing the viscera and one or two pair of internal symmetrical gills; naked; surrounded by a thin shell, with a single cavity? or partly or entirely contained in last chamber of a chambered shell, furnished with a siphon passing from chamber to chamber.

Individual unisexual.

Animal free, walking on its head or swimming in the sea; propelled by the water from the siphon tube.

The water of respiration enters the large aperture in the front of the body, and is expelled through the siphuncle, carrying with it the fæces. The large nervous ganglion is contained in a cartilaginous case, sending fibres to all parts of the body.

Cephalopoda *Cuvier, Tab. Elém.* 1798, *Anat. Comp.* 1800, *Règne Anim.* 1817; *Férussac, Tab. Syst.* 18. 1819; *Lamck. Phil. Zool.* i. 322. 1809, *Ext. d. Cour.* 1812; *De Haan, Monog.* 1825; *Grant, Lect.* 1833; *D'Orbigny, Moll. Viv. et Fos.* i. 107. 1845; *Gray, Proc. Zool. Soc.* 1847, 264.; *Owen, Trans. Zool. Soc.* ii. 103. 1838.

Pterygiorum *Latr. Fam. Nat.* 153. 1825.

M. brachiata (pars) *Poli, Test. Sicil.*

Cryptodibranchiata *Blainv. Dict. Sci. Nat.* xxxii. 172. 1824; *Man. Malac.* 364. 1825.

- Cryptodibranchia or Brachiocephala *Blainv.* 1814; *Dict. Sci. Nat.* xii. 88. 1818; *Menke, Syn.*
 Antliobranchiophora *Gray, Lond. Med. Rep.* 1821.
Mollia Eichwald.
 Cephadelia Cephalopodia *Rafin. Anal. Nat.* 138. 1815.

Synopsis of Orders.

Subclass I. *ANTEPEDIA*. — Body naked. Shell none, or internal. Head separate, with eight or ten fleshy arms furnished with cups. Gills two. Siphuncle entire. Foot none.

Order I. OCTOPIA.

Arms eight; Cups sessile, without any horny ring. No internal medial dorsal Shell. Eyes fixed in the skin.

Order II. SEPHINIA.

Arms ten, two longer; Cups peduncled, with a horny circle. Internal medial Shell. Eyes free in the orbit.

Subclass II. *POLARNAXIA*. — Body without fins, enclosed in the last chamber of a siphoned-chambered external shell. Head not separate from the body, with a great number of cylindrical annulated retractile tentacles, without cups. Gills four. Siphuncle slit. Foot-like appendage distinct.

ORDER III. NAUTILIA.

Subclass I. *ANTEPEDIA*.

Body naked. — *Shell* none, or internal. — *Foot* none.
Head separate, with eight or ten fleshy arms furnished with cups.
 — *Gills* two. — *Siphuncle* entire.

Cephalopoda nuda *Cuvier, Anat. Comp.* 1800; *Lamck. Ext. d. Cour.* 1812; *Schwieger, Naturg.* 1820.

Cephalopoda (testa nulla) *Lamck. Phil. Zool.* i. 322. 1809.

Cephalopoda libera *De Haan, Mon. Amm.* 1825.

Cephalopoda cryptodibranchia *D'Orb. Ann. Sci. Nat.* vii. 96. 1826; *Menke, Syn.* 1. 1828, ed. 2. 1. 1830; *Grant, Lect.* 1833.

Mol. Cephalorum natantium Sepiadæ *Flem. Brit. Anim.* 225. 1828.

Cephalopoda acetabulifera *Férus. & D'Orb. Hist. d. Céphal.* 1834; *D'Orb. Moll. Viv. et Fos.* i. 157. 1845.

Cryptodibranchia nuda *Blainv.* 1814; *Dict. Sci. Nat.* xii. 88. 1818.

Cryptodibranchiata *Blainv. Dict. Sci. Nat.* xxxii. 172. 1824.

Cephalopoda *Leach, Zool. Misc.* iii. 1817.

- Cephalopoda dibranchia *Owen, Trans. Zool. Soc.* ii. 103. 1838.
C. dibranchiata Gray, Proc. Zool. Soc. 1847, 204.
 Antliobrachiaphora, Anosteophora, et Sepiaphora *Gray, Lond. Med. Rep.* 1821.
C. antepedia Rafin. Anal. Nat. 139. 1815.

ORDER I. OCTOPIA.

- Body* short, rounded, united to the head by a broad cervical band.
 Sometimes ? covered with a thin single-chambered shell.
Head very large, with aquiferous opening; none on the gills or lips. Siphuncle without any internal valve. Eyes fixed, united to the skins, incapable of rotation. Buccal membrane none.
Arms eight, all sessile, without swimming membranes. Cups sessile, flat, and without any horny ring. Tentacular arms none. No internal medial dorsal shell.
 The front of the mantle is supported by a fleshy band or by fleshy buttons on the siphon (*apparatus of resistance*, D'Orb.), fitting into grooves on the inner side of the mantle.
 Cephalopoda octopoda *Leach, Zool. Misc.* iii. 1817; *Férussac, Tab. Syst.* 18. 1821; *Gray, Proc. Zool. Soc.* 1847, 204.; *Latr. Fam. Nat.* 167. 1828.
 Antliobrachiaphora, Anosteophora, *Gray, Lond. Med. Rep.* 1821.
 Cryptodibranchiata octocera *Blainv. Dict. Sci. Nat.* xxxii. 1824; *Menke, Syn.* ed. 2. 1830.
 Cephalopoda octopodæ *Menke, Syn.* 1. 1828.
C. octopoda Gravenhorst, Thier. 1845.
 Octopodidæ *Gray, Proc. Zool. Soc.* 1847, 204.; *Cantr. Malac. Médit.* 13. 1841.
C. octopia and argonautea Rafin. Anal. Nat. 140. 1815.
C. octobrachides Blainv.
C. octoceres Blainv.

Synopsis of Families.

- I. *OCTOPIDÆ.* Arms subulate. Mantle supported by fleshy bands. No cephalic aquiferous apertures.
 II. *PHILONEXIDÆ.* Arms subulate. Mantle supported by two buttons at the base of the siphuncle, fitting into grooves on the mantle.
 III. *OCYTHOIDÆ.* Arms subulate, two upper palmate. Mantle supported by two buttons fitting into grooves on the base of the siphuncle.

FAM. I. OCTOPIDÆ.

Body united to the head in front by a medial fleshy band.

Head without any aquiferous opening. Arms conical, tapering, with short sessile cups. No external nor internal medial shell.

Living near the shores amongst rocks.

Acochlides Latr. Fam. Nat. 168. 1828.

Octopidæ D'Orb. Moll. Viv. et Fos. i. 159. 164. 1845.

Octopodina Gray, Proc. Zool. Soc. 1847, 205.

Synopsis of the Genera.

1. **OCTOPUS.** Arms with two rows of cups. Body round, without fins. No aquiferous Cells between the bases of the arms.
2. **CISTOPUS.** Arms with two rows of cups. Body round, without fins. Distinct aquiferous Cells between the bases of the arms.
3. **PINNOTOPUS.** Arms with two rows of cups. Body with fins.
4. **ELEDONE.** Arms with one row of cups; without beards, and united by a short web. Body round.
5. **CIRROTEUTHIS.** Arms with one row of cups, bearded, and united by a broad web. Body finned.

A. *Arms with two Rows of Cups.*

1. OCTOPUS.

Body small, round, without any lateral fins, often cirrose. Cirri often nearly disappearing in repose, and when preserved in spirits.—*Head* with two small internal cartilages, one on each side of the beak; in the direction of the body (not oblique), narrower than the body. Eyes small, lateral, covered by the continuation of the surrounding skin, and often by one or two transparent eyelids. Beak very much compressed. External ear slightly marked above the cervical band. No aquiferous cells between the bases of the arms.—*Arms* unequal, elongate, united at the base by a web, which is wider beneath. Cups sessile, two-rowed, flat.—*Siphuncle* elongate, conical, slender, without any superior bands, or valve.—Living on rocks on the coast, very agile, eating crustacea, and changing their colour rapidly. Egg transparent, in bunches attached to *Algæ*.

Πολυπους *Aristoteles.*

Polypus *Plinius, Belon, Rodeletius.*

Sepia sp. *Linnaeus, Gmelin, 1797.*

Octopus *Cuvier, Règ. Anim. ii. 1817; Lamarck, 1799; Blainville, Malac. 1825; D'Orb. Moll. Viv. et Fos. i. 163. t. 1.*

Polypus *Leach, Zool. Misc. 1817.*

The species are generally uniformly coloured or mottled. *O. horridus* n. 12. and *O. lunulatus* n. 16. are marked with distinct spots. *O. membranaceus* n. 22. and *O. ocellatus* n. 26. have a large eyed spot between the bases of the lateral arms.

M. D'Orbigny divides the species thus:—

a. Upper Arms the longest.—*O. Cuvieri, O. indicus, O. breviceps*

b. Lateral Arms the longest.—*O. vulgaris, O. tuberculatus, O. brevitentaculatus, O. superciliosus, O. tetracirrhus, O. membranaceus.*

c. Lower Arms the longest.—*O. rugosus, O. aculeatus, O. lunulatus, O. Fontainianus, O. tchuelchus, O. horridus, O. aranea.*

d. Doubtful Species.—*O. venustus, O. didynamus, O. Peronii, O. granosus, O. sinensis, O. tetradynamus, O. Boscii, O. pilosus, O. heteropodus, O. areolatus, O. frayedus, O. cærulescens, O. Tang Siao.*

e. Apocryphal Species.—*O. colossus.*

Synopsis of the Sections of the Genus.

§ The Cups of the Arms subequal, regular.

* The lower Cups far apart, in one series.

† Body smooth, bearded.

†† Body smooth, not bearded.

††† Back slightly granular.

†††† Back granular, rough.

** The lower Cups rather crowded.

† Body smooth, not bearded.

†† Body bearded.

††† Body minutely granular.

†††† Body granular, rough.

2 § The Cups of the dorsal Pair of Arms largest.

3 § The seventh to the twentieth Cups of the lateral (second and third) Pairs of Arms much larger than the rest.

4 § Cups ending in a Point, not clawed.

5 § Species requiring further Examination.

6 § Apocryphal species.

§ *The Cups of the Arms equal, similar.*

* *The lower Cups far apart, one-rowed.*

† *Body smooth, bearded.*

1. OCTOPUS VULGARIS.

Body small, oval, warty, cirrose; dorsal beards placed in a rhomb. Head warty; ocular beards three. Arms very large, elongate, unequal, the order of their length being 3, 2, 4, 1. Cups far apart, large, near the mouth one-rowed. Web large.—Reddish, whitish beneath.

Πολυπους *Aristoteles*, lib. iv. cap. i.; *Camus*, p. 177.; *Schneid.* ii. p. 130. 15.

Polypus *Salvianus de Aquatil.* 160.; *Gesner de Aquatil.* lib. iv. 870.

Polypus marinus, seu Octopus Karakatiza *Kölreuter*, *Nov. Comm. Acad. Petrop.* vii. 321. t. 11. f. 1, 2.

Polypus octopodia *Leach*, *Journ. de Phys.* lxxxvi. 394.; *Savigny*, *Desc. de l'Egypt. Hist. Nat.* ii. t. 1. f. 1.

Octopodia *Hasselquist*, *Acta Upsal.* 33. 1750.

Octopus vulgaris *Lamck.* *Mém. de la Soc. d'Hist. Nat. de Paris*, i. 18., *Hist. An. sans Vert.* 2nd edit. vii. 657. n. 1.; *Carus*, *Icon. Sep.* in *Nov. Act. Acad. Nat. Cur.* xii. 1. part. xxxi. 319.; *D'Orbigny*, *Tab. des Céph.* 52. p. 1.; *Blainville*, *Dict. des Sci. Nat.* xliii. 188.; *Risso*, *Hist. Nat. del Eur. Mer.* iv. 3. p. 2.; *Blainville*, *Faun. Franç. Moll.* 5. t. 1. f. 1. ?; *Payradeau*, *Catal.* 172. n. 350. ?; *Audouin*, *Expl. des Planch. de Sav.* texte i. 9. in 8vo p. 22.; *Delle Chiaje*, *Mem.* iv. 40. and 55. t. 56. f. 13.; *Wagner*, *Zeitschr. für die Org. Phys.* ii. 22.; *Bull. Univ. des Sc. Nat.* xix. 387.; *Sangiovani*, *Ann. des Sc. Nat.* xvi. 321.; *Philippi*, *Enum. Moll. Sic.* 240. n. 1.; *Rang*, *Mag. de Zool.* 62. ?; *Règne An. de Cuv.* Ill. t. 1.; *D'Orbigny et Férussac*, *Mon. des Céph. Acét. Poulpes*, t. 2, 3. 3 bis, 8. 11, 12, 13, 14, 15, 29. p. 27.; *D'Orbigny*, *Moll. des Canaries*, 14. n. 1., *Moll. des Antilles*, 11. t. 1., *Moll. Viv. et Fos.* i. 168. n. 1. t. 1. f. 7—9.; *Potiez et Michaud*, *Gall. des Moll. de Douai*, i. 6. n. 1.; *Bouch. Chant. Cat. des Moll. Mar.* 69. n. 122.

Sepia Octopus *Bosc*, *Buff. de Deterville*, *Vers.* i. 47.

Poulpe commun *Montfort*, *Buff. de Sonnini Moll.* ii. 103. t. 22. 24. ? and 113. t. 23, 24, 25. ?; *Shaw*, *Natur. Miscell.* xviii. 780.

Poulpe fraisé *Montfort*, *Buff. de Sonnini*, iii. 5. t. 27. 28.

Le Poulpe *Cuvier*, *Mém. sur les Céph.* t. 1—4.

Octopus appendiculatus *Blainville*, *Dict. des Sc. Nat.* xliii. 188.

Octopus Salutii *Verany*, *Mem. del Acad. Torino*, i. t. 3.

Octopus unciirrhus Delle Chiaje, D'Orb. et Féruss. Mém. des Céph. Acét. 73.

Hab. Atlantic Ocean, Mediterranean, Indian Ocean, Red Sea.

a. Yarmouth. Adult. In spirits.

†† *Body smooth, not bearded.*

2. OCTOPUS ÆGINA.

Body oblong, elongated, smooth, marbled, not bearded. Nape, eyes, and back of head smooth. Eyes very prominent. Arms rather elongate; proportionate length, 4, 3, 2, 1. Web short, rather wider below, smooth above. Cups rather large and rather far apart, equal; the five or six lower ones far apart, and in a single series.

Hab. ———.

a. ——— ? In spirits ———.

3. OCTOPUS ARANEA.

Body oblong, short, smooth. Head short, narrow, very smooth; ocular beards one, posterior. Arms much elongated, smooth, slender very unequal; order of their length, 4, 3, 2, 1. Cups small, close, numerous; about 180 on the longest arms; the four nearest the mouth in a single line. Web short. — In spirit blackish, colouring dots very small.

Octopus aranea D'Orb. Poulpes, t. 5. 1825; D'Orb. et Féruss. Mém. des Céph. Acét. 57., Poulpes, t. 5.; D'Orb. Moll. Viv. et Fos. i. 184. p. 23.

Octopus filamentosus Blainv. Dict. des Sc. Nat. xliii. 188. 1826.

Hab. Isle of France.

††† *Back slightly granular.*

4. OCTOPUS GERYONEA.

Body (in spirits) marbled, smooth. Head and base of the arms very minutely granular. Eyes with one fleshy tubercle, and one behind the eye; upper eyelid rugose. Arms moderate, very thick at the base; proportionate length, 3, 4, 2, 1. Web broad, upper surface finely granulated. Cups large, subequal; the three or four lowest rather distant, and one-rowed.

Hab. Coast of Brazils.

a. Bahia. In spirits.

5. OCTOPUS HARDWICKEI.

Body roundish, oblong. Middle of the back, back of the head, and the eyelids warty. Ocular tentacles none; eyelid smooth. Arms moderate, rather slender; proportionate length, 4, 3, 2, 1. Cups rather large; the five or six lowest rather far apart, one-rowed. Web rather broad, quite smooth above.

Octopus Hardwickei Gray, *Brit. Mus.* 1826.

Hab. Indian Ocean.

a, b. Singapore? In spirits. Captain Hay's Collection.

++++ *Body granular.*

6. OCTOPUS RUGOSUS.

Body oval, purse-shaped, large, with a deep groove above. Head and arms and upper part of body covered with roundish tubercles, not bearded. Head short, warty; ocular beard one, elongated. Arms short, thick, conical; the order of the length is 4, 3, 2, 1. Cups large, of upper part of arm rather smaller, lowest one-rowed. Web short. — When alive, violet-brown, white beneath: side of the arms netted with brown lines.

Polypus mas *Seba*, *Thes.* iii. t. 2. f. 2, 3?, 1758.

Octopus Barker, *Phil. Trans.* l. 777. t. 29. f. 1—4.; *Bruguère*, *Encyc. Méth.* t. 76. f. 1, 2.; *Shaw*, *Miscell.* x. 359.

Le Poulpe granuleux *Montfort*, *Buff. de Sonnini Moll.* iii. 30. t. 29.

Le Poulpe Américain de *Barker* *Montfort*, *Buff. de Sonn.* iii. 38. t. 30. 1802.

Sepia rugosa *Bosc*, *Act. de la Soc. d'Hist. Nat.* t. 5. f. 1, 2. 1792.

Sepia granulosa *Bosc*, *Buff. de Deterville Vers.* i. 47. 1802.

Octopus granulatus *Lamarck*, *Mém. de la Soc. d'Hist. Nat. de Paris*, i. 20. p. 2. 1799; *Hist. An. s. Vert.* vii. 658.; *Férussac*, *D'Orb. Tab. des Céphal.* 53. n. 2.; *Blainv. Dict. des Sc. Nat.* xliii. 185.; *Philippi*, *Enum. Sicil.* 241. n. 3.

Octopus Barkerii *Férussac*, *D'Orb. Tab. des Céph.* 54. n. 3. 1826.

Octopus americanus *Blainv. Dict. des Sc. Nat.* xliii. 189. 1826.

Octopus rugosus *Blainv. Dict. Sc. Nat.* xliii. 185. 1826; *D'Orbigny et Férussac*, *Mém. des Céphal. Acét.* 45., *Poulpes*, t. 6. p. 23.; *D'Orbigny*, *Moll. des Antilles*, i. 18., *Moll. Viv. et Fos.* i. 171. n. 3.

Hab. Atlantic Ocean, Indian Ocean.

a. Valparaiso. In spirits. Mr. Bridges's Collection. The fourth, or lower, pair of arms rather shorter than the third pair.

** *Lower Cups crowded.*

† *Body smooth, not bearded.*

7. OCTOPUS FAVONIA.

Body (in spirits) oblong, smooth, without any beards. Eyes without beards. Arms moderate, conical; relative length, 3, 2, 1, 4. Webs moderate, with hard transparent granulations above, especially between the dorsal arms. Cups similar, subequal, large; the two or three lowest one-rowed.

O. Indicus *Gray, Brit. Mus.* 1830; not D'Orb.

Hab. Indian Ocean.

a. Singapore. In spirits. Presented by General Hardwicke.

8. OCTOPUS EUDORA.

Body smooth. Ocular tentacles none. Arms rather short, sub-quadrangular, not fringed on the outer edge; relative length, 2, 3, 4, 1; three upper pairs subequal. Web short, rather broader below. Cups moderate, subequal, regular; one or two lowest near mouth one-rowed.

Hab. Atlantic Ocean.

a, b. Jamaica. In spirits. Mr. Gosse's Collection.

9. OCTOPUS TCHUELCHUS.

Body round, short, smooth. Head smooth. Arms elongated, compressed, nearly equal; the order of their length, 4, 1, 3, 2. Cups about a hundred on the longest arms. Web thin. Siphuncle elongate, narrow. — When alive blackish brown, whitish beneath

Octopus Tchuelchus D'Orb. Voy. dans l'Amér. Mér. v., Moll. 27. t. 1. f. 6, 7. 1835; *D'Orb. et Féruss. Mém. des Céph. Acétab.* 55., *Poulpes*, t. 17., *Moll. Viv. et Fos.* i. 172. n. 4.

Hab. Atlantic Ocean, Patagonia. *D'Orb.*

10. OCTOPUS CASSIOPEA.

Body (in spirits) smooth, oblong, moderately long. Ocular beard one, conical, medial, posterior. Arms moderate, rather thick at the base; proportionate length, 2, 3, 4, 1. Web short, rather broader beneath, smooth above. Cups moderate, subequal; of the third pair of arms rather the largest.

Hab. Mediterranean.

a. Marseilles. In spirits. Presented by J. Ritchie, Esq.

11. OCTOPUS BREVIPES.

Body oblong, large, smooth. Head short, broad. Eyes prominent, without eyelids. Arms conical, very short, nearly equal, about one third the length of the animal; upper pair rather longest. — Bluish, with red spots. Eyes silvery, with a blue spot above them. Perhaps young. *D'Orb.*

Octopus brevipes D'Orbigny, Voy. dans l'Amér. Mér. Moll. 22. t. 1. f. 1—3.; D'Orbigny et Férussac, Mon. des Céph. Acét. 61., Poulpes, t. 17. f. 1.; D'Orbigny, Moll. Viv. et Fos. i. 174. n. 6.

Hab. Atlantic Ocean.

†† *Body bearded.*

12. OCTOPUS HORRIDUS.

Body short, smooth, round, with numerous regularly placed diverging beards. Head short, with diverging beards round the eyes. Arms short, thick, five or six bearded externally, nearly equal, conico-subulate; order of length, 4, 3, 2, 1. Cups rather large, subequal; one or two lowest, especially of the second pair of dorsal arms, one-rowed. Web moderate, extending up the outer edge of the arms. — Bluish? when alive, with large regular round white spots (seen also when in spirits).

Octopus horridus D'Orbigny, Sav. Descr. de l'Egypte, Atlas, Céphal. t. 1. f. 2.; D'Orbigny, Tab. des Céph. 54. n. 4.; Audouin, Explicat. des Planches de Sav. 3. p. 2.; Ehrenberg, Cephalopoda, Octopus, n. 2.; D'Orbigny et Férussac, Mon. des Céph. Acét. 51., Poulpes, t. 7. f. 3.; D'Orbigny, Moll. Viv. et Fos. i. 178. n. 15.

O. fimbriatus Rüppell, MS. (in Brit. Mus.); D'Orb. et Férussac, Céph. Acét. 64., Moll. Viv. et Fos. i. 179. n. 16.

O. Argus Krauss, Sud-Afr. Moll. 132. t. 6. f. 28.

Hab. Red Sea.

a. Red Sea. In spirits. From Dr. Edward Rüppell's Collection, as "*O. fimbriatus Rüppell.*"

13. OCTOPUS ACULEATUS.

Body short, rounded, small, covered near the head with numerous beards. Head longly bearded; beards crowded, forming a circle round the eyes. Arms thick, elongated, bearded externally, unequal; order of length, 4, 2, 3, 1. Cups very large and very numerous. Web short. — When alive, whitish.

Octopus aculeatus D'Orb. Tab. des Céph. Poulpes, t. 7. 1823; D'Orb. et Férussac, Mon. des Céph. Acét. 53., Poulpes, t. 7, 8. 23.; D'Orb. Moll. Viv. et Fos. i. 183. n. 21.

Octopus niveus *Féruss. D'Orb. Tab. Méthod. des Céph.* 54. 1826;
Lesson, Voy. de la Coquille, Zool. ii. part 1. 239. t. 1. f. 1. 1 bis.
Hab. Manilla and Borapora.

††† *Body minutely granular.*

14. OCTOPUS SAPHENIA.

Body and arms minutely granular. Ocular beards none. Arms moderate; comparative length, 2, 3, 4, 1; three upper pairs subequal. Web short, granular above. Cups subequal.

Hab. Pacific Ocean.

a. East coast of South America. In spirits. Presented by the Rev. W. Hennah.

15. OCTOPUS BERENICE.

Body (in spirits) oblong. Head and base of the arms and back of the body minutely granular, and with regularly disposed roundish groups of small granules. Eyes with four or five granulated tubercles on the dorsal edges, forming a fringe. Arms moderate; relative length, 2, 3, 4, 1. Cups very large, subequal. Web moderate, rather wider below.

Hab. ———

a. ———? In spirits. Presented by Mr. John Leadbeater, 1805.

16. OCTOPUS LUNULATUS.

Body short, covered with scattered tubercles, and about twenty rounded prominent circles with concave centres, in six series. Head short, thick, tubercular, with one medial and two lateral convex circles, with a tubercle in the centre. Arms short, conical, nearly equal; order of their length, 4, 3, 2, 1; with a circle between the bases of the arms. Cups about fifty. Web very short. — When alive, white, varied with blue circular spots paler in the centre.

Octopus lunulatus *Quoy & Gaimard, Zool. du Voy. de l'Ast.* ii. 86. t. 6. f. 1, 2.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 59. *Poulpes*, t. 10. 26.; *D'Orbigny, Moll. Viv. et Fos.* i. 182. n. 20.

Hab. New Zealand.

17. OCTOPUS TETRACIRRHUS.

Body oval, slightly granular, with a posterior beard. Ocular cirrhi two, anterior and posterior. Arms short, rather unequal in length; in order, 2, 3, 1, 4. Web very broad. Cups in two lines; the first three round the mouth in one line. — Yellowish when alive.

Octopus tetracirrhus Delle Chiaje Moll. MS. ; D'Orbigny et Férussac, Mon. des Céph. Acét. 36. n. 5., Poulpes, t. 22.; D'Orbigny, Moll. Viv. et Fos. i. 175. n. 8.

Hab. Mediterranean.

18. OCTOPUS SUPERCILIOSUS.

Body oval, acuminated behind, slightly granular, longly bearded ; one beard being posterior, seven or eight on the back, and some in two lines on the sides, forming a kind of crest which is sometimes indistinct. Head very distinct, swollen, smooth in the middle, with some tubercles over the eyes. Arms elongated, angular, conical, nearly equal ; order of their length, 2, 4, 3, 1. Cups far apart, large ; beak without lateral wings.—When alive, white.

Octopus superciliosus Quoy & Gaim. Zool. du Voy. de l'Ast. ii. 28. t. 6. f. 4. 1832 ; D'Orbigny et Férussac, Mon. des Céph. Acét. 41., Poulpes, t. 10. 28. ; D'Orbigny, Moll. Viv. et Fos. i. 180. n. 18.

Hab. Bass's Straits, Australia.

†††† *Body granular, rough.*

19. OCTOPUS BOSCH.

Body roundish ; back of head and arms closely acutely granulated ; back with a few regularly placed larger tubercles. Eyes with three conical beards. Arms elongate, granulated, without any beards externally ; the upper pair with a very wide dorsal membrane, the other with a narrow one arising from the outer side. Cups in two regular marginal series. Web moderate, granulated above.

Sepia rugosa Péron, MS.

Octopus Boschii LeSueur, Journ. Acad. Nat. Sci. Philad. ii. 101. 1822.; D'Orb. et Férussac, Mon. des Céph. Acét. 68.; D'Orbigny, Moll. Viv. et Fos. i. 186. n. 26.

Octopus variolatus Péron, Blainv. Dict. Sc. Nat. xliii. 186. 1826.

Hab. New Holland.

a. New Holland. ? In spirits. Presented by J. B. Jukes, Esq.

20. OCTOPUS TUBERCULATUS.

Body short, round, covered with irregular papillary granular warts ; back with four conical, acute, diverging beards. Head short, warty ; ocular beards two, the hinder elongated. Arms granular, cirrose, short, unequal ; the order in length of the arms is

2, 3, 4, 1, or 3, 2, 4, 1. Cups very large, the first three in one line. Web rather wide, granulated above, extending up the outer side of the arms, especially of the second and third pairs. —Violet brown, beneath white.

Octopus tuberculatus *Blainville, Dict. des Sc. Nat.* 1826, p. 6. t. 1. f. 3.; *Faun. Franç. Moll.* 8. t. 1. f. 3.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 38., *Poulpes*, t. 21. 23. p. 38.; *D'Orbigny, Moll. des Antilles*, 15. n. 2., *Moll. Viv. et Fos.* i. 170. t. 1.

Octopus ruber *Rafinesque, Précis des Découv. Somiol.* 28. n. 70.?

Hab. Atlantic Ocean, Mediterranean.

a. Pacific Ocean. In spirits. ————— ?

21. OCTOPUS POLYZENIA.

Body oblong, rounded, short. Head, back of the dorsal arms, and back of body granular, and with a few scattered warts or short beards. Arms slender, outer edge of ventral arms smooth; comparative length, 4, 3, 2, 1. Web short, rather wider below. Cups large, subequal.

Hab. Australian seas.

a. Port Essington. In spirits. Presented by the Earl of Derby.

22. OCTOPUS MEMBRANACEUS.

Body obtuse, granular, provided with a lateral membrane. Head large; ocular beards three, elongate, granular above and below. Arms short, unequal, quadrangular; order of their length, 2, 3, 4, 1. Cups large. Web short, granular. —When alive, white, with a black eyed spot between the bases of the second and third pairs of arms.

Octopus membranaceus *Quoy & Gaim. Zool. de Voy. de l'Ast.* ii. 89. t. 6. f. 5.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 43. *Poulpes*, t. 10. 28.; *D'Orbigny, Moll. Viv. et Fos.* i. 181. n. 19.

Hab. New Guinea.

2 § *Cups of the dorsal Pair of Arms larger than the rest.*

23. OCTOPUS CUVIERI.

Body oblong, enlarged below, warty above, and with a medial posterior beard; aperture of moderate size. Ocular beards indistinct. Arms very long, slender, unequal; order of length, 1, 2, 3, 4; first and third much longest. Web broad. Cups elevated. some on the two upper pair of arms larger.

Octopus Cuvieri D'Orb. *Tab. des Céph. Poulpes*, t. 4. 1835, *Moll. des Canaries*, 16. n. 2., *Moll. Viv. et Fos.* i. 173. n. 5.; D'Orb. et Féruss. *Mon. des Céph. Acét. Poulpes*, t. 1. 4. 24. 27. p. 18.; Guérin, *Icon. de Règ. Anim. Moll.* t. 1. f. 1.

Octopus Lechenaultii D'Orb. *Tab. des Céph. Poulpes*, t. 1. 1825.

Octopus macropus Risso, *Hist. Nat. del Eur. Merid.* iv. 3. n. 3. 1826; *Delle Chiaje*, *Mem.* iv. 40. 56. p. 2. t. 54. p. 26. 1828; *Blainv. Faun. Franç. Moll.* 6. n. 2.; *Wagner, Zeitschr. für die Organ. physik.* ii. 225.; *Bullet. des Sc. Nat.* xix. 387. n. 1.; *Rang, Mag. de Zool.* 61. t. 90.; *Philippi, Enum. Moll. Sic.* 240. n. 2.

Octopus macropodus Sangiovani, *Ann. Sc. Nat.* xvi. 319. 1829; *Bullet. des Sc. Nat.* xx. 338.

Octopus longimanus Féruss. *MS.*

Hab. Atlantic Ocean, Mediterranean, Indian Ocean, Red Sea.

24. OCTOPUS MEDORIA.

Body, head, and base of arms minutely granular, with scattered rather larger rounded tubercles. Body oblong, rather acute behind. Eyes large; ocular tentacles none. Arms elongate, slender; comparative length, 1, 3, 4, 2. Cups rather small, regular, equal, of the dorsal pair rather largest. Web moderate, scarcely wider beneath, smooth above.

Hab. ——— ?

a. ——— ? In spirits. The left dorsal arm not fully developed, and with small cups like the other arms. Somewhat like *O. Cuvieri* Féruss. *Céphal.* t. 4.

3 § *A Few of the Cups near the Base of the second and third Pairs of Arms much larger than the rest.*

25. OCTOPUS FONTANIANUS.

Body large, oval, slightly warty; aperture broad. Head narrow, nearly smooth; ocular beards one, posterior. Arms moderate size, angular, subequal; the inferior pair longest. Cups close together, subequal, gradually diminishing in size; the seventh to the tenth cups of the second and third pairs of arms much largest. Web very broad.—When alive, violet, deeper above.

Sepia Octopus Molina, *Hist. Nat. du Chili*, p. 173. ?

Octopus Fontanianus D'Orbigny, *Voy. dans l'Amér. Mérid. Moll.* 28. t. 2. f. 5.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 49., *Poulpes*, t. 28, 29.; *D'Orbigny, Moll. Viv. et Fos.* i. 179. n. 17.

Hab. Pacific Ocean, coasts of Chili and Peru.

26. OCTOPUS OCELLATUS.

Body roundish, oblong; back of head and outside of the arms regularly granular; eyes and head without any cirri; beneath smoothish, sides rounded. Arms moderate, unequal. The fourth or fifth cups of the second and third pairs of arms much larger than the rest. — A large black eyed spot between the bases of the second and third pairs of arms.

Octopus ocellatus *D'Orb. & Férussac, Mém. Céph. Acét. Poulpes*, t. 9. upper figure, from Chinese drawing.

Hab. Chinese seas.

a. China. In spirits. Presented by John Reeves, Esq.

27. OCTOPUS CEPHEA.

Body (in spirits) smooth, oblong, rather elongate. Head smooth; ocular beard small, surrounded by other smaller beards. Arms thick, moderately long; proportionate length, 3, 2, 4, 1. Web broad, broader in front, upper surface quite smooth. Cups very large; the tenth to the twentieth cups of the second and third pairs of arms larger, equal; the four or five lowest of all the arms one-rowed.

Hab. —————.

a. —————. In spirits. —————.

Very like *O. vulgaris*, but differs in the size of the cups on the lateral arms.

28. OCTOPUS CYANEA.

Body (in spirits) ovate, above rather granular, beneath smooth. Ocular tubercle rugose, superior. Arms rather elongate, conical; order of length, 2, 4, 3, 1. Cups large; the tenth to the twentieth of the second and third pairs of arms larger, equal-sized; the lowest, especially of the ventral arms, one-rowed. Web broad, minutely granular above, especially between the upper arms.

Hab. Australian seas.

a. Coast of New Holland. In spirits. Presented by J. B. Jukes, Esq.

b. ? ————— ? In spirits ?

4 § “Cups ending in a Point, not clawed.”

29. OCTOPUS CÆRULESCENS.

Body short. Arms much longer than the body. Cups ending in a point, but not clawed. — Blue, varied with very small close purple dots. Cups whitish. *Blainv.*

Octopus cærulescens Péron, *Blainv. Dict. des Sc. Nat.* xlii. 129. 1826; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 65.; *D'Orbigny, Moll. Viv. et Fos.* i. 185. n. 24.

Hab. New Holland, Island of Dorre. *Péron.*

The form of the cups, if correct, would indicate a different family.

5 § *Species requiring further Examination.*

30. *OCTOPUS LONGIPES.*

Body elongated, oval, glabrous, grey spotted with black. Arms very long, slender. Cups large, rather prominent.

Octopus longipes Leach, *Zool. Miscell.* iii. 137. 1817; *Férussac, D'Orb. Tab. des Céph. Ann. Sc. Nat.* 54. n. 6.; *Blainville, Dict. des Sc. Nat.* xliii. 189.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 67., *Moll. Viv. et Fos.* i. 187. n. 31.

Polypus longipes Leach, *Journ. de Phys.* lxxxvi. 394. 1818.

Hab. —————? Mus. Oxford. Probably *O. Cuvieri* or *O. aranea* D'Orbigny.

31. *OCTOPUS BREVITENTACULATUS.*

Body (in spirits) short, globular, smooth, not tubercled. Arms thick, cirrous, conical, short; proportion of length, 2, 3, 4, 1; the longest only three times as long as the head. Cups large.

Octopus brevitentaculatus *Blainv. Dict. Sc. Nat.* xliii. 187.; *D'Orbigny, Mon. des Céph. Acét.* 36. n. 4., *Moll. Viv. et Fos.* i. 186. n. 30.

O. vulgaris contracted *D'Orb. Moll. Viv. et Fos.* i. 187.

Hab. ————. Mus. Paris, three specimens.

32. *OCTOPUS VENUSTUS.*

Body oval, purse-formed, smooth; aperture large. Head short, rather broad; eyes prominent. Arms rather short, nearly equal. Cups small. *Rang.*

Octopus venustus *Rang, Moll. MSS.*; *D'Orbigny et Férussac, Mém. des Céph. Acét.* 64., *Poulpes*, t. 21. f. 8, 9. 1838; *D'Orbigny, Moll. Viv. et Fos.* i. 175. n. 7.

Hab. Atlantic Ocean, Goree.

"Perhaps from a young specimen." *D'Orbigny.*

33. OCTOPUS GRANOSUS.

Body small, globular, rather transverse, finely granulated above and below. Arms eight times as long as the body; proportionate length, 4, 3, 2, 1. Web slight.

Octopus granosus *Blainv. Dict. des Sc. Nat.* xliii. 186.; *Faune Française, Moll.* 7. t. 1, 2.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 63.; *D'Orbigny, Moll. Viv. et Fos.* i. 176. n. 9.

Hab. Mediterranean, Sicily. *Blainville.*

34. OCTOPUS PILOSUS.

Body round, grey, ashy-brown, provided above with reddish hairs disposed in bundles. Arms very short, thick. Cups large. Eyes very large and very prominent.

Octopus pilosus *Risso, Hist. Nat. del Eur. Merid.* iv. 4. n. 5. 1826; *Blainville, Faun. Franç. Moll.* 7. n. 3.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 67.; *D'Orbigny, Moll. Viv. et Fos.* i. 177. n. 10.

Hab. Mediterranean, Nice.—*Risso.*

A very doubtful species. *D'Orb.*

35. OCTOPUS FRAYEDUS.

Arms equal, six times as long as the body, without any cups at the end.

Octopus frayedus *Rafinesque, Précis de Découv. Somiol.* 1814; *Blainville, Dict. des Sc. Nat.* 1826, p. 189.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* p. 71.; *D'Orbigny, Moll. Viv. et Fos.* i. 177. n. 11.

Hab. Mediterranean. *Rafinesque.*

36. OCTOPUS DIDYNAMUS.

Arms unequal, the upper pair longest, nearly five times as long as the body.

Octopus didynamus *Rafinesque, Précis de Découv. Somiol.*; *Blainville, Dict. d'Hist. Nat.* xliii. 190.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 71.; *D'Orbigny, Moll. Viv. et Fos.* i. 177. n. 12.

Hab. Mediterranean. *Rafinesque.*

37. OCTOPUS TETRADYNAMUS.

Arms unequal, alternately longest, about five times as long as the body.—*Grey.*

Octopus tetradymanus Rafinesque, Précis des Découv. Somiol. 1814; *Blainville, Dict. des Sc. Nat.* xliii. 190.; *D'Orbigny et Férussac. Mon. des Céph. Acét.* 71.; *D'Orbigny, Moll. Viv. et Fos.* i. 177. n. 13.

Hab. Mediterranean.

38. OCTOPUS HETEROPODUS.

Arms unequal, very short, scarcely as long as the body; the upper pair longest. Back reddish.

Octopus heteropodus Rafinesque, Précis de Découv. Somiol.; Blainville, Dict. des Sc. Nat. xliii. 190.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 71.; *D'Orbigny, Moll. Viv. et Fos.* i. 178. n. 14.

Hab. Mediterranean.

39. OCTOPUS AREOLATUS.

Like *O. Cuvieri*; but the body areolated on the surface, with a dark spot in each areole.

Octopus areolatus De Haan, MSS. Lettre de 1835; D'Orb. et Férussac, Mon. des Céph. Acét. 65.; *D'Orb. Moll. Viv. et Fos.* i. 186. n. 27.

Hab. Coast of Japan. *De Haan.*

40. OCTOPUS PERONII.

Body rugose. Arms thicker and shorter than those of *O. variolatus*, and with larger and fewer cups. Brownish green.

Sepia Octopoda Péron, MSS.

Sepia Peronii LeSueur, Journ. Acad. Nat. Sc. Philad. ii. 101. 1822.

Octopus Peronii Féruss. D'Orb. Tab. Class. des Céph. 54. n. 7. 1823; *D'Orbigny, Moll. Viv. et Fos.* i. 185. n. 25.

Octopus pustulosus Péron, Blainv. Dict. Sc. Nat. xliii. 186. 1826; *D'Orb. et Féruss. Mon. des Céph. Acét.* 66.

Hab. New Holland, Isle Dorre.

41. OCTOPUS FANG SIAO.

Wangtchao-iu *Encyclopéd. Japonnaise*, lib. 51; *D'Orbigny.*

Octopus Fang-siao D'Orb. et Féruss. Mon. des Céph. Acét. 70. *D'Orbigny, Moll. Viv. et Fos.* i. 186. n. 28.

Hab. Coast of Japan.

42. OCTOPUS SINENSIS.

A large species.

Octopus sinensis *D'Orb. et Féruss. Mon. des Céph. Acét.* 68., *Poulpes*, t. 9. lower figure, *Moll. Viv. et Fos.* i. 186. n. 29.; from *Récueil de Poissons, de Moll. et Crust. grav. et enlum. au Japon, avec les noms Chinois et Japonnais*, folios 36 and 37.; *Encyclopéd. Japonnaise*, liv. 51. fol. 17. verso, *Pen-thsao-kang-mo*, 1593, art. *Tchang-iu*.

Hab. Coast of Japan.

43. OCTOPUS CARENA.

Octopus Carena *Verany, Mem. Acad. Torino*, i. t. 2., *Cat. Anim. Invert. Genova*, 17.

Hab. Genoa.

44. OCTOPUS KOELLIKERI.

Body short, oblong. Arms subulate, slightly webbed at the base; two lower pairs subequal, very short; upper pair rather longer than the second pair.

Octopus Koellikeri *Verany, Cephal. ex Sicil.* ii. t. 1. f. 1. not described.

Hab. Sicily. Perhaps a *Philonexis*.

45. OCTOPUS COCCO.

Body conical. Arms moderate, subequal. Superocular beard one, small.

Octopus cocco *Verany, Congresso di Napoli, Col. Anim. Invert. Genova*, 17. 29. t. 4. f. 1. 1846.

Hab. Genoa.

6 § *Apocryphal Species.*

46. OCTOPUS COLOSSUS.

Poulpe colossal *Montfort, Buff. de Sonnini, Mollusques*, ii. 256. t. 26.

Sepia gigas *Oken, Lehrb. des Zool.* 345. n. 7.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 70.; *D'Orb. Moll. Viv. et Fos.* i. 187.

Poulpe Kraken *Montfort, Buff. de Sonnini, Moll.* ii. 386.; *D'Orbigny, Moll. Viv. et Fos.* i. 188.

2. CISTOPUS.

Body small, round, without any lateral fins.—*Head* in the direction of the body. Eyes lateral, covered by the skin. External ear indistinct. A small aquiferous system, consisting of a bag with a small pore at the outer edge, situated between the bases of the arms.—*Arms* unequal, elongate, united at the base by a web wider beneath. Cups sessile, two-rowed, flat.—*Siphuncle* conical.—Living on rocky coasts.

Octopus sp. *Gray, B. M.; Rüpp. MSS.; D'Orb. Moll. Viv. et Fos. i. 183., Céph. Acét. 24.*

1. CISTOPUS INDICUS.

Body smooth, pouch-shaped, not bearded. Arms rather elongated, unequal; order of their length, 1, 2, 3, 4; web very broad. Cups large; two or three near the base of the dorsal pair of arms large.

Octopus indicus Rüpp. MSS.; D'Orb. et Férussac, Mon. des Céph. Acét. 24., Poulpes, t. 25, 26. f. 1—4.; D'Orbigny, Moll. Viv. et Fos. i. 183. n. 22.

Hab. Island of Celebes.

a. India. In spirits. Presented by General T. Hardwicke.

3. PINNOCTOPUS.

Body oblong, with broad, lateral, wing-like expansions, which extend in front, and enfold all the body.—*Head* indistinct, narrower than the body. Eyes lateral, dorsal.—*Arms* very long, with two rows of scarcely prominent cups, and with a broad web at the base.

Pinnoctopus D'Orb. Moll. Viv. et Fos. i. 193. t. 2.

Octopus sp. *Quoy & Gaim. Voy. Astrol. 1832.*

1. PINNOCTOPUS CORDIFORMIS.

Body orbicular, tubercular, winged. Arms long, nearly equal length, the lateral ones shortest. Eyes rather prominent.—Red-brown, arms with pale-blue lunules.

Octopus cordiformis Quoy & Gaim. Zool. du Voy. Astrol. ii. 27. t. 6. f. 2.; D'Orb. et Féruss. Mon. de Céph. Acét. 62., Poulpes, t. 10. f. 1.

Pinnoctopus cordiformis D'Orb. Moll. Viv. et Fos. i. 193. t. 2.

Hab. New Zealand. Only known from M. Quoy's figures.

4. ELEDONE.

Body small, oblong, without fins, rounded behind. Aperture narrow. Ventral part of mantle united to the head by a central fleshy band; nuchal band broad.—*Head* straight, indistinct, narrower than the body. Eyes small, lateral, dorsal, prominent, covered by the continuation of the skin. Beak compressed. Ears slightly marked.—*Arms* long, tapering, webbed at the base. Cups sessile, rather cylindrical, in a single line.—*Siphuncle* elongate, conical, without superior bands or valve.—Emitting a musky smell, and living in rocky places.

Ελεδωνη *Aristot.*; Bolitænæ and Ozolis *of the Ancients.*

Eledone *Aldrovandus, De Moll. cap. 3. 1606; Leach, Zool. Misc. 1817, iii. 137.; Schweig. Natgsch 758. 1820; Rang, Man. 87. 1829.*

Eledon *Cuvier, Règne Anim. 1817, ed. 2. 1830; Desh. in Lamck. Hist. xi. 234.; Pot. et Mich. Zool. i. 7. 1838; Verany.*

Eledona *Risso, Eur. Merid. iv. 2. 1826.*

Polypus *Rondelet., Gesner; Owen, Trans. Zool. Soc. 1838; Oken, Isis, 1838, 836.*

Sepia sp. *Linnaeus.*

Octopus sp. *Lamarck.*

Ozaina *Plin.*

Heledone *Menke, Cat. ed. 2. 1830.*

Moschites *Schneider, Samml. Verm. Abhandl. 1835. See Féruss. Bul. Sci. Nat. 1835-36.*

Ozæna *Rafin. Anal. Nat. 129. 1815; Montfort.*

"Ozcema *Rafinesque.*"

Eledonæ (fam.) *Risso, Eur. Merid. iv. 2. 1826.*

* *Ocular Beards two. Central Arms equal.*

1. ELEDONE MOSCHATUS.

Body oblong, acuminate behind, smooth, when excited bearded, granular. Ocular cirri elongated, central. Arms long, slender, compressed, equal. Cups far apart.—Colour very variable, with three blackish spots in a horseshoe. Web edged with blue.

Ελεδωνη *Aristot. lib. iv. cap. 1.; Camus, p. 117.; Schneider, ii. 130.*

Ozaina *Plin. Hist. Nat. lib. ix. cap. 30.*

Eledona *Belon, De Aquatil. 333., La Nat. et Divers. de Pois. 337.*

Polypi *tertia species Rondelet. de Piscib. lib. xvii. cap. 8. 516. cap. 9. (1st species) 417.*

Polypus *tertia species Bossuet, De Aquat. lib. iv. 740. 871.*

Polypus *femina Seba, Mus. 3. f. 2. 6. 4.*

- Poulpe musqué *Montfort*, iii. 80. t. 34. 1802; *Cuvier*, *Règne Anim.* iii. 12.
- Eledona, Bolitæna, Ozolis, *Aldrovand.* *De Moll.* cap. 3. 42, 43.
- Moschites *Schneider*, *Collect. de div. Dissert.*
- Poulpe d'Aldrovande *Montf. Sonn. Moll.* iii. 55. t. 32. 1802.
- Octopus moschatus *Lamck.* *Mém. Soc. Hist. Nat.* i. 22. n. 4. t. 2. 1799; *Hist. An. s. Vert.* vii. 658. n. 4.; *Blainville*, *Dict. Sc. Nat.* xliii. 190.; *Payradeau*, *Cat. Coq. Corse*, 172. n. 349.; *Sangiovani*, *Ann. Sc. Nat.* xvi. 317.; *Blainville*, *Faun. Franç.* 9. n. 7.; *Philippi*, *Enum. Moll. Sic.* 241.; *Rang*, *Mag. de Zool.* 64. t. 91.
- Sepia moschata *Bosc*, *Buff. de Deterv. Vers.* i. 48. 1802.
- Ozæna moschata *Rafinesque*, *Précis de Découv. Somiol.* 29. n. 72. 1814.
- Ozæna Aldrovandi *Rafinesque*, *Précis de Découv. Somiol.* 29. n. 73. 1814.
- Eledone moschata *Leach*, *Journ. de Phys.* lxxxvi. 293. 1817; *Cuvier*, *Règne An. Ill.* t.; *D'Orb. et Féruss. Mon. Céph. Acét.* 72. t. 1. 1 bis, 3.; *Potiez et Michaud*, *Gal. de Douai*, i. 7. n. 1.; *D'Orb. Moll. Viv. et Fos.* i. 196. t. 3.
- Eledon moschatus *Féruss. D'Orb. Tab. des Céph.* 55. n. 1.; *Delle Chiaje*, *Mem.* iv. 48. 56.
- Eledon moschata *Ranzani*, *Mem. di Stor. Nat.* dec. 3. 151. 1819.
- Eledona moschata *Risso*, *Hist. Nat. Eur. Merid.* iv. 2. 1826.
- Octopus moschites *Carus*, *Nov. Act. Acad. Nat. Cur.* xii. 1st part, 319. t. 32. 1824.
- Eledon Aldrovandi *Delle Chiaje*, *Mem.* iv. 43. 67. 1828, "imaginary," *D'Orb.*
- Octopus leucoderma *Sangiov. Ann. Sc. Nat.* xvi. 318. 1829.
- Eledone Genei *Verany*, *Acad. Reule delle Sc.* i. 1838 (the young), *Congress de Torino*, *Cat. Anim. Invert. Genova*, 17. 29. n. 55. 1846; *Shaw*, *Nat. Miscell.* t. 359.; *Barbut*, *Genera Verm.* 75. t. 8. f. 1.
- Hab.* Mediterranean.

** *Ocular Beards none. Arms unequal.*

2. ELEDONE OCTOPODIA.

Body rounded, very minutely granular, dilated behind. No ocular cirrhi. Arms of moderate length, conico-subulate, granular, unequal; order of length, 1, 3, 2, 4. Cups close together.
—Pale black, brown-spotted.

Sepia octopodia *Pennant*, *Brit. Zool.* iv. 53. t. 28. f. 44.

Sepia moschites *Herbst. Einleit. zur*, &c. 80. n. 5. t. 389.

Sepia cirrhosa *Bosc*, *Buff. de Deterv. Vers.* i. 47.

- Poulpe cirrheux *Montfort, Buff. de Sonnin. Moll.* iii. 67. t. 33.
Octopus cirrhosus Lamck. Mém. Soc. Hist. Nat. Paris, i. 21.
 n. 3. t. 1. f. 2. a, b. ; *Férussac, D'Orb. Tab. Méthod. Céph.* 56.
 n. 2. ; *Blainville, Dict. Sc. Nat.* xlvii. 191.
Octopus ventricosus Grant, Edin. New Phil. Journ. 1827, p. 309. ;
Bullet. (Féruss. xii. 397. 1827.)
Eledone cirrhosus D'Orb. et Féruss. Mon. Céph. Acét. Eledons,
 t. 2. ; *D'Orb. Moll. Viv. et Fos.* i. 194.

Hab. Coast of Britain and Europe.

23. a. Berwick on Tweed. In spirits. Presented by G.
 Johnston, M.D.
 b. Dalmatia. In spirits. Purchased of Dr. Heckel.

5. CIRROTEUTHIS.

Body round. Fins oblong, transverse, dorsal. Aperture very small, inferior.—*Head* small ; cervical band occupying three fourths of the circumference. Eyes small, lateral ventral, without eyelids.—*Arms* equal, conical, subulate, united together by a thin funnel-shaped web, which is immediately attached to the arms at the base (as high as the fifth cup) and at the tip, but in the middle is united to the back of the arm by a thin skin, forming a kind of pouch. Cups in a single row, alternating with fleshy beards.—*Siphuncle* moderately long.

Cirroteuthis Eschrich. Nov. Act. Nat. Cur. xviii. 625. (1836, 1838) ;
Desh. Lamck. Hist. ed. 2. xi. 234. 1845.

Cirrhoteuthis Moller, Ind. Moll. Groen. 4. ; *Koryer, Naturk. Tidsk.*
 iii. 98. iv. 77. ; *D'Orb. Moll. Viv. et Fos.* i. 198. 1845 ; *Gray,*
Proc. Zool. Soc. 1847, 205. n. 795. (not *Chiroteuthis D'Orb.*)

Sciadephorus Reinh. & Prosch, Kong. Dansk. v. Selsk. Naturv. xii.
 1846.

Sciadophorus. 1847, misprint, see *Herrmann*, 442.

Bostrychoteuthis Agassiz, Nomenclat. 87.

1. CIRROTEUTHIS MULLERI.

Body smooth, oblong, three-lobed. Fins longer than broad, blunt, depressed. Eyes very small. Arms equal, quadrangular. Cups very small, oval, about thirty ; beards between the cups filiform.—*Violet.*

Cirroteuthis Mulleri Eschrich. Nov. Act. Phys. Med. Acad. Cæs.
Leop. Nat. Cur. xviii. part 2. 625. t. 46, 47, 48. ; *Desh. Lamck.*
Hist. xi. 234.

Cirrhoteuthis Mulleri D'Orbigny, Moll. Viv. et Fos. i. 198. t. 4. ;
Moller, Ind. Moll. Groenl. 4.

Sciadephorus Mulleri Reinh. & Prosch Kong. Dansk. v Selsk. Naturv. xii. t. 1, 2. 1846.

Hab. Coast of Greenland.

FAM. II. PHILONEXIDÆ.

Body oblong. The ventral portion of the mantle free, supported by a button on to the lower part of the siphuncle, fitting into a transverse cavity in the inner surface of the mantle. Ventral opening very large, extending on the sides of the neck. Cervical band narrow.

Head moderate. Eyes large, prominent, without any beards. External ear without any crest, on the side of the neck, behind the eyes, and above the cervical band. Aquatic pores, two, four, or six; two on the head above, two anal below, or two on each side, and sometimes some small ones at the base of the head, which is enclosed in the mantle; the larger cephalic and anal pore communicating with a large cavity placed under the head, and passing above the eyes; sometimes this cavity is separated into two by a medial line.

Arms elongate, tapering, not crested, simple at the end. Cups fleshy, pedunculated, very extensible, subcylindrical, in two rows, sometimes far apart.

Siphuncle broad, short, without any upper band or internal valve.

Shell none, neither internal nor external.

Pelagian, living on the high seas. Crepuscular or nocturnal, eating floating mollusca.

Philonexidæ (pars) *D'Orb. Moll. Viv. et Fos. i. 199. 1845.*

Philonexiana Gray, Proc. Zool. Soc. 1847.

Synopsis of Genera.

1. **PHILONEXIS.** Arms free.
2. **TREMOCTOPUS.** Arms, upper pair webbed.

1. PHILONEXIS.

Arms free, tapering, unequal.—Nocturnal. Above the eyes blue

Philonexis D'Orb. Céph. Acét. 1839, Moll. Cuba, i. 7. 21. 1847.

Voy. Amér. Mérid. 1835, Ann. Sci. Nat. xvi. 1841.

Philonexis (pars) *D'Orb. Moll. Viv. et Fos. i. 200. 1845; Gray, Proc. Zool. Soc. 1847, 205. n. 797.*

Philonexus D'Orb. Gray, Syn. B.M. 87. 98. 1842.

Octopus sp. Blainv. Férussac.

* *Two upper Pairs of Arms longest, free ; lower very small.*

1. PHILONEXIS ATLANTICUS.

Body smooth, roundish, large. Head of moderate size, smooth. Eyes prominent, large, without eyelids. Water-bearing apertures two above. Arms slender, unequal ; in order, 1, 2, 4, 3 ; not webbed, except at the base. Cups peduncled.—White, spotted with red.

Octopus (Philonexis) atlanticus D'Orb. Voy. Amér. Mérid. Moll. 19. t. 11. f. 1—4. 1835.

Philonexis atlanticus D'Orb. Mon. Céph. Acét. 98., *Poulpes*, t. 16. f. 4, 5. 1838, *Moll. Viv. et Fos.* i. 203. 1845.

P. Quoyianus, jun. ? *D'Orb.* l. c. 203.

Hab. Atlantic Ocean, under the tropics.

** *The upper Pair of Arms very long, free ; rest short.*

2. PHILONEXIS EGLAIS.

Body ovate, large ; skin thick, dilated, and covered all over with small rounded peduncled horny buttons which are divided into five or six equal regular lobes round a common centre. Head very small. Eyes prominent. Arms very unequal, and two upper arms very long ; order of length, 1, 2, 3, 4 ; inferior very short.—White ; back red spotted, above the eyes blue.

Octopus (Philonexis) Eglais D'Orb. Voy. Amér. Mérid. Moll. 20. t. 1. f. 18. 14. 1835.

Philonexis Eglais D'Orb. Mon. Céph. Acét. 102., *Poulpes*, t. 17. f. 4, 5. 1838, *Moll. Viv. et Fos.* i. 204. 1845.

Hab. North Atlantic Ocean.

3. PHILONEXIS MICROSTOMUS.

Body rounded, large, smooth, reddish. Head broad. Eyes very large, prominent. Arms smooth, short, very unequal, not webbed ; order of length, 1, 2, 4, 3 ; upper threetimes as long as lower.

Octopus microstomus Regnaud, Mag. de Zool. 23. 1834.

Philonexis microstomus D'Orb. Mon. Céph. Acét. 101., *Poulpes*, t. 10. f. 5. 1838, *Moll. Viv. et Fos.* i. 204. 1845.

P. atlanticus, jun. ? *D'Orb.* l. c. 205.

Hab. North Atlantic Ocean.

*** *The upper Arms longest; rest gradually shorter, to the lowest.*

4. PHILONEXIS HYALINUS.

Body short, broad, smooth, oval, larger before than behind; aperture very large; diaphanous, whitish, marked with red. Head short. Eyes large, prominent, subpedunculated. Arms unequal, not webbed, as long as the body; order of length, 1, 2, 3, 4; upper much longer than the lower.

Octopus hyalinus Rang, *Féruss. et D'Orb. Mon. Céph. Cryptod. Poulpes*, t. 16. f. 1. 1835; Rang, *Mag. de Zool.* 1837, cl. v. 66. t. 92. 1837.

Philonexis hyalinus D'Orb. *Mon. Céph. Acét.* 104., *Poulpes*, t. 16. f. 113. 1838, *Moll. Viv. et Fos.* i. 205. 1845.

Hab. Atlantic Ocean.

**** *The Arms very long, free, very slender. Cups far apart.*

5. PHILONEXIS TUBERCULATUS.

Body oval, pointed behind, very large, smooth above; beneath covered with small, short, horny tubercles, united by netted ridges; aperture very large. Head short, not very distinct; water-bearing apertures four, two above and two below. Arms slender, elongate, nearly equal; comparative length, 1, 4, 2, 3; scarcely webbed. Cups distant, united in each line by an intermediate membrane. Siphuncle very large, larger than the head.—Brown, silvery beneath; arm bluish.

Octopus tuberculatus Risso, *Hist. Nat. Eur. Merid.* iv. 3. n. 4. 1826; *Delle Chiaje, Mem.* iv. 55, 56. t. 55. n. 3. 1832 *Mém. sur l'Aplysia*, p. 68. note.

Octopus reticularis Petagna, *Rappelle delle Sc. di Napoli*, 1826 (1828).

Octopus catenulatus Férussac, *Poulpes*, t. 6. 6*. 6**. 1828.

Octopus Verany Wagner, *Zeitschr. für die Org. Phys.* ii. 1828, *Bullet. Univ. des Sc. Nat.* xix. 388. n. 3.

Polpo di Férussac *Delle Chiaje, Mem.* iv. 41. 1829.

Octopus pictus Blainv. *Faun. Franç. Moll.* 8. n. 6. from Risso.

Philonexis tuberculatus D'Orb. *Mon. des Céph. Acét.* 87., *Poulpes*, t. 6. 6*. t. 23. 1838, *Moll. Viv. et Fos.* i. 206. t. 5. f. 2—6. 1845.

Hab. Mediterranean.

6. PHILONEXIS ALCÆUS.

Body smooth above and below; brown spotted. Arms elongate, slender, free; the upper and lower pairs very long; the two lateral pairs much shorter. Cups far apart.

Perhaps young of former, no appearance of tubercles beneath, both surfaces alike.

a, b. South of Europe. In spirits. Presented by P. B. Webb, Esq.

2. TREMOCTOPUS.

Arms moderate, triangular, upper surface flat, with two series of subcylindrical sessile cups; two upper pair longest, and webbed nearly to the tip. Aquiferous openings four; two above between the eyes, and two below, and sometimes six smaller on each side.

Tremoctopus Delle Chiaje, MS. 1835, quoted by D'Orbigny; Verany, Cat. Anim. Invert. 1848.

Tremectopus Gray, Proc. Zool. Soc. 1847, 205. n. 793. misprint.

Philonexis sp. D'Orb. Céphal. Acét. 1838, Moll. Viv. et Fos. i. 205.

Ocythoe sp. Risso, Eur. Merid. iv.

Octopus sp. Férussac, Rang.

Phisoniscus Rüppell, MS. Brit. Mus.

* *Webs moderate. Lower Arms shorter, free. Head large.*

1. TREMOCTOPUS QUOYANUS.

Body smooth, oblong, large, pointed behind; white, marked with red. Head large, smooth. Eyes large, prominent, without eyelids, blue above. Water apertures four; two above between the eyes, and two below. Arms elongated, unequal; order of length, 1, 2, 4, 3; two dorsal pair longest, and webbed together half their length.

Octopus (Philonexis) Quoyanus D'Orb. Voy. dans l'Amér. Mérid. Moll. 17. t. 2. f. 6—8. 1835, Mag. de Zool. 1835, 141.

Philonexis Quoyanus D'Orb. Mon. Céph. Acét. 96., Poulpes, t. 16. f. 68. 23. 1838, Moll. Viv. et Fos. i. 202. t. 5. f. 1. 1845.

Octopus semipalmatus Owen, Trans. Zool. Soc. ii. t. 21. f. 12, 13. 1836.

Hab. Middle of South Atlantic Ocean.

** *Arms all webbed. Head moderate, with several small ocular aquiferous Apertures.*

2. TREMOCTOPUS VIOLACEUS.

Body rather ovoid, truncated anteriorly, nearly smooth, violet. Head short. Aquiferous apertures four, large; two above and two below; and six small ones near each eye. Arms elongated; order

of length, 2, 1, 3, 4; two dorsal pairs flattened, and webbed to the tip.

Octopus velifer *Féruss. Poulpes*, t. 18, 19. 1830; *Verany, Cat.* 1829.

Tremoctopus violaceus *Delle Chiaje, MS.* 1835; *Verany, Cat.* 1829.

Octopus violaceus *Féruss. Poulpes*, t. 20. from Chiaje.

Octopus velatus *Rang, Mag. de Zool.* p. 60. 1837.

Philonexis velifer *D'Orb. Mon. Céph. Acét.* 91., *Poulpes*, 18, 19, 20. 23. 29. 1838, *Moll. Viv. et Fos.* i. 205. t. 5. f. 7. 1845.

Phisoniscus velatus *Rüppell, MS. Brit. Mus.*

Ocythoe mygaro *Risso, Eur. Merid.*

Hab. Mediterranean.

a. Messina. Adult. In spirits. Dr. Rüppell's Collection.

FAM. III. OCYTHOIDÆ (ARGONAUTIDÆ?).

Body ovoid, enlarged in front, smooth, covered with a thin skin marked with chromatic glands. Ventral aperture extending to under the eyes. Cervical band moderate. Ventral part of the mantle supported by an elevated button on the inner side near the margin, fitting into a notch at the base of the siphuncle.

Head oblique, short above and long below. Eyes lateral, very large, ovate, prominent, covered on the upper edge with a very thin eyelid. Beak broad, not compressed. Ear small, behind the eye, under the cervical band and lateral aquiferous opening. Aquiferous openings one pair at the upper hinder angle of the eye.

Arms tapering, very unequal; the dorsal pair bent back on themselves and furnished with a membrane, the lower pair with a broad membranous exterior keel, the lateral pairs depressed. Cups in two series, prominent, as if slightly pediceled.

Siphuncle very large, conical, attached by two exterior lateral and two other medial very thin bands.

? *Shell* (ARGONAUTA) exterior, one-celled, thin, brittle, transparent, horny, calcareous, slightly flexible when wet; nucleus hemispherical, very large.

The female *Ocythoes* are often found in the shell of the *Argonaut*, and have hence been supposed to form these shells, and as yet no other animal has been found inhabiting them; but there are several reasons for believing that the *Ocythoe* is only a parasite adapted by its form to live in such shells, as the web of the arms is used by the animal to embrace the shell and keep it in its right

position on the body. Unlike all other Mollusca, which form the shell they inhabit: First, the *Ocythoe* is not attached to the shell by any muscle, nor has it any muscle, like the bone-bearing cuttlefish, formed for the purpose of attaching the body to an internal shell. Secondly, the animal, when alive, does not fit the shell; so that the shell cannot have been moulded on its body, as in other Mollusca. Thirdly, the skin of the *Ocythoe* is of the same texture and appearance as in the other naked *Cephalopoda*; and the presence of sand between the shell and the body appears to cause no uneasiness to the animal, as it does in all other shell-bearing Mollusca, where the animal immediately rids itself of the irritation so caused by covering the sand, &c., with a calcareous coat. The animals found in these shells are always female, and the apex of the shell is filled with very small eggs; while from the large size of the young shell, which is seen on the apex of the true Argonaut, we should expect the animal which formed that shell to have a large egg; for, though the eggs of Mollusca are enlarged during the hatching, they are not, in any case I have observed, so much enlarged as to have such a shell.

It is supposed by those who believe that the shell belongs to the *Ocythoe*, that it is formed and mended when broken by the expanded ends of the upper arms, which embrace the outer surface of the shell, and keep it on the body of the animal.

Cranch and Adams, who have seen these animals alive, state that they leave the shell when they are frightened, and they cannot recover their position in the shell after they have thus left it.

Mr. Adams regards the Argonaut shell as a nest formed by the female to contain her eggs; if this is correct, it can scarcely be compared to other shells. He regards them as similar to the cartilaginous cases which Murices and other zoophagous Mollusca form to contain their eggs!; but they have no apparent analogy to those bodies, which are secreted by the oviduct as the eggs are deposited.

These various views show that the origin of the shell is not yet distinctly settled.

Living on the high seas, floating, and feeding on floating Mollusca.

Cephalopoda testacea (pars) *Cuvier, Anat. Comp.* 1800.

Cephalopoda testa unilocularia *Lamck. Phil. Zool.* i. 322. 1809.

Ceph. Argonautidæ *Cantraine, Mall. Médit.* 13. 1841.

Ceph. Argonautica *Gravenhorst, Thier.* 1845.

Philonexidæ (pars) *D'Orb. Moll. Viv. et Fos.* i. 199. 1845.

C. cymbicochlidæ (pars) *Latr. Fam. Nat.* 168. 1828.

C. octopia and C. argonautea *Rafin. Anal. Nat.* 1815.

Cephalopodes monothalmes *Lamck. Hist.* ed. 2. 171. 343.

Ocythoina *Gray, Proc. Zool. Soc.* 1847. 204.

1. OCYTHOE.

See character of the Family.

Ocythoe *Rafin. Anal. Nat.* 1815; *Leach, Phil. Trans.* 1818; *Blainv. Malac.* 1825.

Octopus ϵ . *Blainville, Malac.* 1825.

Ocytoe *D'Orb. Moll. Viv. et Fos.* p. 223. (misprint?).

Shell, ARGONAUTA *Linn.*

Nautilus, Nautilus, *Aristoteles.*

Nautilus, Pompilius, *Plinius.*

Cymbium *Gualteri*, 1742.

Argonauta *Linn., Brug., Rafin. Anal. Nat.* 1815; *Risso, Eur. Merid.* 1826; *Lamarck, D'Orb. Moll. Viv. et Fos.* i. 260.

1. OCYTHOE TUBERCULATUS.

Animal elongate. Body oblong, smooth. Eyes large, prominent. Arms unequal; in the following order, 1, 4, 2, 3; the dorsal pair elongate; the second and third pairs without any internal groove; the third pair depressed their whole length. Siphuncle united to the base of the arms by a lateral membrane.

Ocythoe tuberculata *Rafinesque, Précis de Découv. Somiol.* 29.

Ocythoe Argos *Deshayes, Enc. Méth.* iii. 643.

Ocythoe antiquorum *Leach, Zool. Miscel.* iii. 139., *Journ. de Phys.* lxxxvi. 394.; *Blainv. Journ. de Phys.* lxxxvi. 360. 434—447.

Ocythoe probatio *Leach, Phil. Trans.*

Octopus antiquorum *Blainv. Dict. Sc. Nat.* xliii. 192. t. 1 bis, f. 1.

Octopus Argonauta *Blainv. Malacol.* 366. t. 1 bis, f. 1.

Octopus tuberculatus *Blainv. Dict. Sc. Nat.* xliii. 196.

? Argonauta compressa *Blainv. Dict. Sc. Nat.* 212.

Argonauta Argo *D'Orb. Paléont. univ.* t. 1, 2. f. 1—5., *Paléont. étrang.* t. 1. t. 2. f. 1—5., *Moll. Viv. et Foss.* i. 226. t. 6 and 7. f. 1—5.

Hab. Mediterranean, Cape of Good Hope, Indian Ocean.

a. Mediterranean. Adult, without shell. In spirits. Presented by Rev. W. Hennah.

b. Mediterranean. Junior, without shell. In spirits. Presented by Rev. W. Hennah.

c. Mediterranean. Adult, without shell. In spirits. Presented by J. Bates, Esq., R. N.

d. Mediterranean. Adult, without shell, with eggs. In spirits. Presented by W. E. Leach, M. D.

"Ocythoe probatio" *Leach.*

- e, f. Mediterranean. In Argonaut shell, expanded and contracted.
- g. Indian Ocean. In Argonaut shell, contracted. Presented by Capt. Sir Edward Belcher, C. B., R. N.

Shell (ARGONAUTA ARGO) compressed, transversely ribbed on the sides, adorned with unequal bifurcated ribs. Keels two, approximate, tuberculiferous; tubercles small, very frequent. Aperture compressed, sagittate, truncated in front.

Argonauta Argo Linn. *Syst. Nat.* 10. edit. 708. n. 231., *Mus. Lud. Ul.* 548. n. 148., *Syst. Nat.* 12. ed. 1161. n. 271.; *Born, Ind. Mus. Cæs.* 119. A. 1., *Test.* 140, *Vign.* 139.; *Gmel. Syst. Nat.* 3367.; *Brug. Enc. Méth. Vers.* i. 122.; *Walzen, Nov. Act. Phys. Nat. Cur.* viii. 235.; *Olivi, Zool. Adriat.* 129.; *Schreibers, Conchylien*, i. 1. n. 1.; *Turton, Syst. of Nat.* iv. 304.; *Duvernoy, Dict. Sc. Nat.* iii. 102.; *Fischer, Mus. Demidow*, iii. 245.; *Wood, Zoography*, ii. 579.; *Montfort, Conchyl.* ii. t. 6, 7.; *Oken, Lehrb. der Zool.* ii. 336.; *Brooke's Introd. to Conchol.* 90. t. 5. f. 53.; *Burrow, Elements of Conchol.* 75. t. 12. f. 1.; *Brown, Elements of Conch.* 65. t. 7. f. 18.; *Dillwyn, Descr. Cat.* i. 333.; *Schumacher, Ess. d'un Nouv. Syst.* 268.; *Ranzani, Consid. su i Moll. Cefalop. del Argon* in *Opusc. Scient. et Mem. di Stor. Nat.* dec. 1. p. 85. t. 6. f. 1.; *Lamarck, Anim. s. Vert.* 2d edit. viii. 652. n. 1.; *Sowerby, Genera of Shells*; *Férussac, Dict. Class.* i. 552. n. 2.; *Mawe, Linn. Syst. Conchol.* 79. t. 18. f. 1.; *De Martins, Reize nach Venedig*, ii. 438.; *Wood, Ind. Test.* 62. t. 5. f. 1. 2d edit. t. 13. f. 1.; *D'Orb. Prodr.* 47. n. 1.; *Féruss. Not. sur l'Anim. du Genre Argonaute*, in *Mém. Soc. d'Hist. Nat. Paris*, ii. 160. t. 14.; *Poli, Mem. sul Nautil. o Argon. Arg. l'Antologia*, 58., *Test. utriusq. Sicil.* iii. 1. t. 40. to 43., *Ann. of Philos.* 1825, 152.; *Payradeau, Cat. Moll. Corse*, 172. n. 348.; *Risso, Hist. Nat. Eur. Merid.* iv. 4.; *Blainville, Dict. Sc. Nat.* xliii. 212., *Malacolog.* 494.; *Rapp, Ueber die Naturwiss. Abhand.* i. 67. t. 2. f. 1, 2.; *Mauriani, Giorn. de Fisica*, ix. 390.; *Broderip, Zool. Journ.* iv. 57. and 224. t. 3.; *Costa, Cat. de Test.* n. 1. 61.; *Delle Chiaje, Mem. sul. Stor. Nat.* ii. 219.; *Blanchart, Bullet. Soc. Linn. Bord.* iii. liv. iv. 195.; *Eichwald, Zool. Spec.* ii. 34.; *Guérin, Iconog. Règ. An. Moll.* t. 1. f. 3. a. 6.; *Philippi, Enum. Moll. Sic.* 240.; *Potier et Michaud, Gal. de Douai*, 2. n. 1.; *D'Orbigny, Moll. des Antilles*, i. 24. n. 5.; *Reeve, Conch. Syst.* ii. 305. t. 300.

Nautilus papyraceus Martini, Conchyl. Cab. i. 230. t. 17. f. 157.; *Shaw, Nat. Miscell.* iii. t. 101.; *Cubières, Hist. abrég. des Coq.* 43. t. 4. f. 6.

Argonaute papyracé Bosc, Buff. de Deterr. Coq. iii. 261. t. 27. f. 6.; *Montfort, Buff. de Sonnini, Moll.* 119. t. 35.

Argonauta corrugata *Humphrey, Mus. Calon.* 6. n. 80. 1797.

Argonauta sulcata *Lamarck, Syst. An. s. Vert.* 99. 1801.

Argonauta grandiformis *Perry, Conchyl.* t. 42. f. 4.

Arg. striata *Perry, Conchyl.* t. 42. f. 4.

Hab. Atlantic Ocean, Cape of Good Hope, Amboyna, Mediterranean.

a—j. Shells, different ages. From Mr. Broderip's Collection.

k. Shell. From Mr. Mantell's Collection.

l. Shell. —————.

m. Shell. Mus. Cracherode.

n, o. Shell. Malta. Presented by Miss E. Attersoll.

2. OCYTHOE RARICYATHUS.

Animal elongate. Body acuminate behind, smooth. Arms more webbed below than above, unequal; in the following order, 1, 2, 4, 3; the second and third pairs keeled on the outer side; the third pair depressed.

Octopus raricyathus *Blainville, Mém. Journ. Phys.* lxxxvi 393. 1824, *Dict. Sc. Nat.* xliii. 104.

Argonauta nodosa *D'Orb. Moll. Viv. et Fos.* i. 231.

Hab. Cape of Good Hope, India.

Shell (*ARGONAUTA NODOSA*) compressed, thin. Sides with transverse rugæ, which are longitudinally tuberculiferous; tubercles of keels rather eminent, compressed. Aperture compressed externally, having two divaricate ears.

Argonauta Argo *Linnaeus, Syst. Nat.* edit. 9, 10, 11, 12. 1161. n. 271. part; *Gmelin, Lin. Syst. Nat.* var. b. e.; *Bruguière, Encyc. Méth. Vers.* i. 123. var. B.; *Turton, Syst. Nat.* iv. var. 4.

Argonauta nodosa *Solander, MS.*, and *Portland Cat.* 76. 2120. 17.; *Humphrey, Mus. Calon.* 6. n. 81. 1797; *D'Orbigny, Moll. Viv. et Fos.* i. 231.

Nautilé papyracé *Favart d'Herbigny, Dict.* ii. 425, 426.

Paper *Nautilus* *Kammerer, Cabin. Rudolst.* 29. var. 6.

Le Nautilé à grains de riz *Favanne, Conchyl.* i. 714. t. 7. f. A. 7. A. 9. p. 715.

Argonauta oryzata *Museum Geversianum*, 252. n. 133.

Argonaute à grains de riz *Montfort, Buff. de Sonnini, Moll.* iii. 307. t. 37, 38, 39. f. 1. p. 332. t. 40. p. 364.

Argonaute chiffonné, Argonaute à oreilles, Sonnini, Moll. iii. 307. t. 39. f. 2.; *Martini, Conch. Cab.* i. 221. f. 1. 229. t. 17. f. 156. t. 18. f. 166.

Argonauta navicula *Soland. MS.*, and *Port. Cat.* 42. 1055.

Argonauta vitrea *Perry, Conch.* t. 42. f. 1.

Argonauta tuberculata Shaw, *Nat. Misc.* xxiii. t. 995.; *Dillwyn, Descript. Cat.* 334.; *Blainville, Journ. de Phys.* lxxxvi. 445. f. 1. a, b, c.; *Wood, Ind. Test.* 62. n. 2. t. 13. f. 2.; *Bowdich, Elements of Conch.* t. 13. f. 4.; *Férussac, Dict. Class.* i. 552. n. 3.; *D'Orbigny, Prodr.* 48. n. 3.; *Eichwald, Zool. Spec.* ii. 34.; *Deshayes, Enc. Méth.* ii. 69.

Argonauta tuberculosa Schumacher, *Ess. d'un Nouv. Syst.* 260.; *Lamarck, An. s. Vert.* 2d edit. vii. 632. p. 2.; *Blainv. Dict. Sc. Nat.* xliii. 212. f. 1. a, b., *Malacolog.* 365. t. 1. f. 1. a, b.

Hab. Indian seas.

a, b. Shells. Mr. Broderip's Collection.

c. Shell. New Zealand. Presented by And. Sinclair, M.D., R.N.

d, e. Shells. New Zealand. Presented by Dr. Dieffenbach.

f—h. Shells.

i. Shell. Mus. Cracherode.

h, l. Shells. Mr. Broderip's Collection.

m. Shell. Chiloe. Mr. Broderip's Collection.

n—r. Shells, young.

s. Shell. In spirits. One ear. Mr. Broderip's Collection.

3. OCYTHOE CRANCHII.

Animal small. Head long. Ventral aperture large. Aquiferous openings two. Arms short, unequal; in the following order, 1, 2, 3, 4; the webbed arms small, thick.

Ocythoe Cranchii Leach, *Journ. Phys.* 1817; *Tuckey, Voy. Congo*, 410. t., *Phil. Trans.* 1817, 296. t. 12.; *Blainv. Journ. Phys.* lxxxvii. 47. t. 86. f. 2. a, b., *Dict. Sci. Nat.* xlii. 195.

Octopus punctatus Blainv. *Dict. Sci. Nat.* xliii. 195.

Argonauta hians D'Orb. *Moll. Viv. et Foss.* i. 232.

Hab. Atlantic Ocean.

a. Coast of Africa. Without shell. In spirits. Presented by J. Cranch, Esq., Congo Expedition.

b. ———? With young shell. In spirits.

Shell (*ARGONAUTA HYANS*) compressed, whitish brown, adorned with unequal radiating ribs. Keels remote, margined on each side with thick tubercles. Aperture broad, oblong.

Argonauta Argo Linn. *Syst. Nat.* edit. 9, 10, 11, 12. 1161. n. 271. part; *Born, Test. Mus. Cæs.* 140. var. β.; *Gmel. Syst. Nat.* 3369. var. δ.; *Bruguère, Encycl. Méth. Vers.* i. 123. var. c.; *Turton, Syst. of Nat.* iv. var. 3.

Nautilus papyraceus Davila, *Catal. Syst.* i. 108. n. 87. 2d spec.; *Seba, Thesaur.* iii. t. 84. f. 9—12.; *Menschen, Cat. Mus. Oudan.*

8. n. 49.; *Cat. Mus. Leersian.* 10. n. 66, 67.; *Favart d'Herbigny, Dict.* ii. 426.; *Favanne, Cat. de la Tour d'Auvergne*, 57. n. 248., *Conchyl.* i. 711. t. 7. f. A 6. f. A 3. 713., f. A 10. f. A 1. p. 717.
- Argonaute papier brouillard *Montfort, Buff. de Sonnin. Moll.* iii. 358 and 371.
- Nautilus tenuis *Martini, Conch. Cab.* i. 235. t. 17. f. 159. 658. et p. 238., vignette, p. 221. f. 2.
- Argonauta hyans *Solander, MS.*, and *Portland Cat.* 44. 1055.; *Humphrey, Mus. Calonn.* 6. n. 82.; *Dillwyn, Desc. Cat.* 334. n. 3.; *Férussac, Dict. Class.* i. 553. n. 4.; *D'Orb. Prodr.* 48. n. 5.; *D'Orb. et Féruss. Mon. Céph. Acét. Argonautes*, t. 5.; *D'Orbigny, Paléont. univ.* t. 2. f. 6—10., *Paléont. étrang.* t. 2. f. 6—10., *Moll. Viv. et Fos.* i. 223. t. 7. f. 6—10.; *Adams, Voy. Samarang, Moll.* 4. t. 3. f. 2. a, b, c.
- Ocythoe Cranchii *Leach, Phil. Trans.* 1817, 296. t. 12. f. 1—6.
- Argonauta Cranchii *Férussac, Dict. Class.* i. 552. n. 1.; *D'Orb. Class. des Céph.* 48. n. 6.
- Argonauta haustum *Dillw. Desc. Cat.* 335.; *Wood, Ind. Test* 62. n. 5.; *Deshayes. Enc. Méth.* ii. 70. n. 3.; *D'Orb. Moll. de l'Am. Mérid.* 12., *Moll. des Canar.* 17. n. 3., *Moll. des Antill.* i. 28. n. 6.
- Argonauta gondola *Dillwyn, Desc. Cat.* 335. n. 4.; *Wood, Ind. Test.* 62. n. 4.; *Férussac, Dict. Class.* i. 553. n. 5.; *Mawe, Lin. Syst. Conchol.* 79. t. 18. f. 2.; *Deshayes, Encyc. Méth.* ii. 69. n. 2.; *Adams, Zool. Voy. Sam. Moll.* 3. t. 1. f. 2. a., t. 2. f. 2. q, r, s, t.
- Argonauta nitida *Lamarch, An. s. Vert.* vii 653. n. 3.; *Blainv. Dict. des Sc. Nat.* xliii. 213.; *Crouch, Conchyl.* 43. t. 20. f. 17.; *Deshayes, Encyc. Méth.* ii. 69.
- Argonauta crassicostata *Blainv. Dict. Sci. Nat.* xliii. 213.
- Argonauta raricosta *Blainv. Dict. Sc. Nat.* xliii. 213.; *Deshayes, Enc.* ii. 69 n. 1.
- Argonauta Owenii *Adams, Zool. Voy. Samarang*, 4. t. 3. f. 1. a, b, c.
- Hab.* Coast of Africa, China.
- a—c. Shells. Mr. Broderip's Collection.
- d. Shell. Without ears. Mr. Broderip's Collection.
- e. Shell. China. Presented by John Reeves, Esq.
- f—j. Shells, young.

Species not sufficiently described.

4. "ARGONAUTA RUFa."

Animal and shell thick, red.

Argonauta rufa *Owen, Trans. Zool. Soc.* ii. 114.

Hab. South Pacific. Capt. P. P. King, R. N.

ORDER II. SEPHINIA.

Body elongate, oblong, or cylindrical, sometimes without any cervical band. Fins developed, lateral or dorsal, posterior. Mantle supported by a fleshy band, or by cartilaginous buttons and loops.

Head smaller than the body. Eyes free in the orbit, turning in every direction in the very large orbital cavity. Buccal membrane largely developed. Aquiferous apertures on the lips and arms, but none on the head.

Arms ten; eight sessile, often edged with membranes; two tentacular, elongated, coming out between the third and fourth pairs of sessile arms and the lips. Cups oblique, peduncled, strengthened with a horny ring, sometimes formed into a claw.

Siphuncle almost always provided with an internal valve.

Shell internal, longitudinal, occupying and strengthening the middle of the back.

Sepia Linn. *S. N.*

Ceph. antepedia *Sephinia Rafin. Anal. Nat.* 139. 1815.

Cephalopoda decapoda *Leach, Zool. Misc.* iii. 1817; *Férussac, Tabl. Syst.* 18. 1821; *Gray, Proc. Zool. Soc.* 1847, 205.; *Menke, Syn.* i. 1828; *Cantraine, Mal. Médit.* 13. 1841.

Antliobrachiophora *Sepiaphora Gray, Lond. Med. Rep.* 1821.

Cryptodibranchiata decacera *Blainv. D. S. N.* xxii. 1824; *Menke, Syn.* ed. 2. 1830.

Cephalopoda decapoda enterostea *Latr. Fam. Nat.* 160. 1825.

Loliginea *Gravenh. Thier.* 34. 1834.

Decabrachides *Blainv.*

Sepiaceæ *Blainv. Dict. Sci. Nat.* xii. 90. 1818; *Ehrenb. Sym. Phys.* 1831.

Sepiadæ *Fleming, Brit. Anim.* 252. 1828.

Sepiæ (les Seiches) *Féruss. Tab. Syst.* 24. 1821.

Sepiæphora *Gray, Lond. Med. Rep.* 1821; *Desh. Ency. Méth.* iii. 946.

Sepiophora *Gray, Mem. B. M.* 92. 1843; *Herrmannsen, Ind.* ii. 442.

Sepialea (pars) (les Sepiales) *Lamck. Phil. Zool.* 1809.

Sepiolea *Lamck. Extrait du Cour.* 1812; *Desh. Ency. Méth.* p. 236. 1830.

Sepiaria (pars) (les Sepiaries) *Lamck. Hist.* vii. 654. 1822.

Sepiina *Macgillivray, Moll. Aberd.* 22. 1843.

Sepiidæ *Cantraine. Malac. Méd.* 13. 1841; *Leach, Zool. Misc.* iii. 138. 1817.

M. D'Orbigny separates this order into two suborders (*Moll. Cuba*, i. 7. 1841) thus :

- i. *Myopsidæ* Eyes covered with the skin, without immediate contact with the water: this will contain *Cranchiadae*, *Sepiadae*, *Spirulidae*, and *Loligidae*.
- ii. *Oigopsidæ*. Eyes open externally, in immediate contact with the water: *Loligopsidæ*, *Chiroteuthidae*, *Onychoteuthidae*, and *Belemnitidae*.

Synopsis of Families.

A. Shell solid, horny. — CHONDROPHORA.

A. Mantle supported by two internal fleshy Bands. (Allied to *Octopidæ*.)

I. *CRANCHIADÆ*. Eyes covered with the skin. Siphuncle with a valve.

II. *LOLIGOPSIDÆ*. Eyes naked. Siphuncle simple.

B. Mantle furnished with three internal Cartilages; one dorsal, two ventral.

III. *CHIROTEUTHIDÆ*. Eyes naked, simple above. Siphuncle simple.

IV. *ONYCHOTEUTHIDÆ*. Eyes naked, with a sinus above. Siphuncle with a valve.

V. *LOLIGIDÆ*. Eyes covered with skin, simple.

B. Shell cellular, calcareous. Mantle with two cartilaginous Ridges on ventral side. — SEPIAPHORA.

VI. *SEPIADÆ*. Eyes covered with skin. Head united to mantle by a broad cervical band.

C. Shell chambered, siphoned, calcareous or horny. — BELEMNOPHORA.

VII. *SPIRULIDÆ*. Shell spiral, whorls separate.

VIII. *BELEMNITIDÆ*. Shell straight.

Suborder I. *CHONDROPHORA*.

Shell internal, solid, horny or cartilaginous, either lanceolate, pinnate, with a central longitudinal dorsal ridge above, and a groove beneath, sometimes thick on each side near the edges; or flat, narrow, with a narrow central longitudinal solid rib, and a similar rib on each edge. The apex solid, sometimes thickened, produced, and cartilaginous.

Teuthomorpha (pars) *Bronn, Gesch. der Nat.* 538. 1847.

SECT. I.—Ventral side of mantle supported by two internal fleshy bands. 1. CRANCHIADÆ. 2. LOLIGOPSIDÆ.

SECT. II.—Ventral side of mantle free, with two internal cartilaginous ridges. 3. CHIROTEUTHIDÆ. 4. ONYCHOTEUTHIDÆ. 5. LOLIGIDÆ.

Æ. *Mantle supported by two internal fleshy Bands on the ventral Side. Body soft, semitransparent, elongate. Fins posterior, dorsal.*

FAM. I. CRANCHIADÆ.

Body large, membraneous, ventricose, rounded behind, narrowed and truncated in front. Fins terminal, affixed to a special prolongation of the body, oval, separated by a nick behind; united to the head by a narrow cervical band, and below by a fleshy band on each side of the base of the siphuncle.

Head very small, very narrow in front and behind the eyes. Eyes large, prominent, covered with a continuous skin with a small transparent spot. Buccal membranes large, acutely eight-lobed; lobes opposite to the base of the arms.

Arms. Sessile arms conical, subulate, short, unequal, without fins, and with two rows of cups; the third pair longest; three upper pairs shortly webbed together. Tentacular arms large; club finned behind, and with four series of cups.

Siphuncle very long, obliquely truncated at its extremity, with an internal valve, but no superior central band.

Shell horny, as long as the body, narrow, bilanceolate, and pointed at each end.

Cranchina Gray, *Proc. Zool. Soc.* 1847, 205. n. 801.

Cranchia Férussac, Owen, *D'Orb. Moll. Viv. et Fos.* i. 238.

Sepidæ (pars) *D'Orb. Moll. Viv. et Fos.* i. 238. 1845.

Calmars B. Les Cranchies *Blainville*.

Teuthidæ (pars) *Owen, Trans. Z. S.* ii. 4. 1838.

1. CRANCHIA.

See character of Family.

Cranchia Leach, *Zool. Misc.* iii. 137. 1817; *Tuckey, Voy.* 140. 1817; *Férussac et D'Orb. Tab. Céphal.* 58. 1825; *Owen, Trans. Zool. Soc.* ii. 21. 1836; *D'Orb. et Férussac, Céph. Acét.* 1839; *D'Orb. Moll. Viv. et Fos.* i. 238., *Moll. Antil.* 1839.
 Calmars B. Les Cranchies *Blainv. Dict. Sc. Nat.* xxvii. 135.

1. CRANCHIA SCABRA.

Body and head covered above with numerous horny tubercles, divided into two, three, or four points. Body very voluminous, flask-shaped. Fins rounded, united by their sides. Eyes very large. Sessile arms unequal; order of their length, 3, 2, 4, 1; cups far apart on the margin of the arms. Tentacular arms contractile; cups smaller than those of the sessile arms. Shell horny, very narrow; narrowed in the middle, and expanded and acute at each end.

Cranchia scabra Leach, *Tuckey, Exped. to Congo*, 410. t. 1817, *Zool. Miscell.* iii. 137., *Journ. de Phys.* lxxxvi. 395., *Pl. de Juin*, n. 6.; *D'Orbigny, Tab. Méth. Class. de Céph.* 58.; *Owen, Trans. Zool. Soc.* ii. t. 21. f. 1—5.; *D'Orb. et Féruss. Céph. Acét.* n. 1., *Cranchia*, t. 1. f. 1.; *D'Orb. Moll. des Antilles*, i. 32. n. 7., *Moll. Viv. et Fos.* i. 239. t. 8. from Owen and Leach.

Loligo Cranchii *Blainv. Journ. de Phys.* 123. 1823, *Dict. Sc. Nat.* xxvii. 135.; *Férussac, Dict. Class. d'Hist. Nat.* iv. *Atlas*, f. 4.

Hab. Atlantic Ocean. Sea of West Indies.

a. Africa, Congo. In spirits. Mr. J. Cranch, from the Congo Expedition.

b. The shell of a.

2. CRANCHIA MACULATA.

Body smooth, very beautifully marked with black spots; ovate, distant. Head and arms ————— ?

Cranchia maculata Leach, *Tuckey, Exped. to Congo*, 410. t. 1817, *Journ. de Phys.* lxxxvi. 395.; *D'Orbigny, Tab. Méth. de la Class. de Céph.* 58., *Moll. Viv. et Fos.* i. 241.; *D'Orb. et Féruss. Céph. Acét.* 224.

Loligo lævis *Blainville, Journ. de Phys.* 123. 1823, *Dict. des Sc. Nat.* xxvi. 135.

Hab. Atlantic Ocean.

a. Africa, Congo. In spirits. The sac only. Presented by Mr. J. Cranch, from the Congo Expedition.

FAM. II. LOLIGOPSIDÆ.

Animal membranaceous, semipellucid.

Body elongate, tapering behind. Mantle supported by three muscular bands; one medial dorsal under the end of the shell, and one on each side of the ventral surface. Fins caudal, terminal, semicircular; their united outlines oval or rounded. Ears without any crest.

Head small, broad. Eyes lateral, anterior, peduncled, naked, without any lacrymal sinus. Buccal membrane very short. No buccal, brachial, nor anal aquiferous pores.

Siphuncle without any superior central band; no internal valve.

Shell internal, horny, elongated, slender, pennate, solid.

Loligopsidæ Gray, *Syn. B. Mus.* 1840, *Proc. Zool. Soc.* 1847, 205.; *D'Orb. Moll. Cuba*, i. 7., *Ann. Sc. Nat.* xvi. 1841, *Moll. Viv. et Fos.* i. 367. 1847.

Teuthidæ (pars) Owen, *Trans. Zool. Soc.* ii. 2. 1838.

1. LOLIGOPSIS.

Body very much elongated, conical, attenuated. Mantle supported by three muscular bands; one medial, dorsal, under the end of the shell, and one on each side of the ventral surface. — *Head* small, broad, very short, much depressed, narrow behind. Eyes peduncled, very large, naked. Buccal membrane seven-lobed, without cups. — *Sessile arms* conical, subulate, very contracted, rounded, very unequal. Cups oblique, peduncled, in two alternating series; rings smooth. Tentacular arms not retractile, slender, marginal, dorsal. — *Siphuncle* very large, broad, elongate, nicked on the sides, without any central superior band or internal valve. — *Shell* internal, horny, flexible, slender, keeled above; very narrow, lanceolate, thickened at the tip. — Living in the high seas.

Loligopsis (Calmaret) Lamck. *Extr. d. Cour.* 1812; Férussac et *D'Orb. Céph.* 1839.

Loligopsis Lamck. *Hist.* vii. 659. 1822; *D'Orb. Moll. Cuba*, i. 7. 1841, *Moll. Viv. et Fos.* i. 368.; Grant, *Trans. Zool. Soc. Lond.* i. 21. *Anat.* 1847; Owen, *Trans. Zool. Soc.* ii. 2.

Leachia LeSueur, *Jour. Acad. Philad.* ii. 89. 1821, not Risso, E.M. 1826; "Lesson," *Blainv. Malac.* 1825.

Loligo sp. Blainville, *Journ. de Phys.* 1823.

Perothis Eschscholtz, *MS.* 1827?; Rathke, *Mém. Acad. Pétersb. par divers savans*, ii. 1835.

* *Smooth.*—*Loligopsis*.1. *LOLIGOPSIS PAVO*.

Body smooth, very much elongated, conical, spotted with red. Fins terminal, short, soft, narrow, outline together heart-shaped, not notched in front. Sessile arms short, slender, three upper pair rounded. Cups much depressed, broad, oblique; rings smooth exteriorly, inner edge divided into square teeth. Tentacular arms slender. Shell elongate, very thin, nearly gelatinous, attenuated anteriorly, lanceolate posteriorly.

Loligo pavo *LeSueur, Journ. Acad. Nat. Sc. Philad.* ii. 96. n. 5. t. ad p. 97. 1821; *Blainv. Journal de Phys.* 1823, 33., *Dict. des Sc. Nat.* xxvii. 145.; *Féruss. Dict. Class.* iii. 67. n. 16.

Loligopsis pavo *D'Orb. & Féruss. Céph. Acét. Calmars*, t. 6. f. 1. 4., *Loligopsis*, t. 4. f. 1. 8. 1839; *D'Orb. Moll. Viv. et Fos.* i. 369. t. 23. f. 5—10.

Hab. Atlantic Ocean, Arctic Seas, Madeira.

2. *LOLIGOPSIS ELLIPSOPTERA*.

Body funnel-shaped, semipellucid; hinder part of the body elongate, tapering. Fins depressed, semicircular, rounded, outline together oblong. Siphuncle very large. Arms very unequal; comparative length, 2, 3, 1, 4; the second pair longest; dorsal and ventral pairs small. Shell slender, penniform, horny.

Loligopsis ellipsoptera *Adams, Zool. Voy. Samarang, Mollusca*, t. 2. t. 1. f. 1.

Hab. North Atlantic.

Mr. Adams only describes eight arms, probably the peduncled arms were destroyed. Scarcely appears to differ from *L. cyclura*.

3. *LOLIGOPSIS ZYGÆNA*.

Fins half-oblong, together nearly square, narrower in front, broader and sinuous behind. Sessile arms, order of length, 1, 2, 4, 3; two upper pair longest, two lower short; the dorsal pair webbed at the base, rest free. Tentacular arms with small cups scattered on the elongated peduncles.

Loligopsis Zygæna *Verany, Cephal. ex Sicily*, t. 1. f. 2.

Hab. Sicily.

4. *LOLIGOPSIS VERMICULARIS*.

Neck very thin and long. Fins together subcordate. Sessile arms with very small distant cups in alternate series; ten-

tacular arms with very numerous microscopic cups. Shell very slender.

Loligopsis vermicularis Rüppell, *Giorn. del Gabinetto di Messina*, xxvi. 1844-5.

Hab. Sicily.

**** Sides with Rows of acute Tubercles. Shell solid at Tip.—**
Leachia LeSueur, *Perotis Esch.*

5. LOLIGOPSIS CYCLURA.

Body elongate, rather fusiform, attenuated behind, whitish, spotted with red; sides with a longitudinal row of eleven acute four-pointed tubercles, and many smaller ones. Fins semicircular, broad, together subrhomboidal. Sessile arms large, conical, very contractile, unequal; proportionate length, 3, 2, 4, 1. Cups nearly spherical; rings oblique. Shell elongate, thin, very narrow anteriorly, lanceolate, rather dilated behind; tip very sharp, attenuated, solid.

Leachia cyclura *LeSueur*, *Journ. Acad. Nat. Inst. Soc. Philad.* ii. 90. t. 6. 1821.

Loligopsis cyclura *Féruss.* *Dict. Class.* ii. 68. pl. f. 3. 1823; *D'Orb. Moll. Viv. et Fos.* i. 370. t. 23. f. 4.

Loligo Leachii *Blainv.* *Dict. Sc. Nat.* xxvi. 135., *Journ. de Phys.* 1823, p. 124.

Loligopsis Leachii *Féruss.* *D'Orb. Tab. de Céph.* 57. 1825.

Loligopsis guttata *Grant*, *Trans. Zool. Soc. Lond.* i. 21. t. 2. 1833; *D'Orb. Céph. Acét. Loligops.* t. 1. f. 1. t. 3. t. 4. f. 9—16.

Perothis pellucida *Eschscholtz*, *MS.* 1827.

Perothis Escholtzii *Rathke*, *Mém. de l'Acad. des Sc. de St. Pétersb. par divers savans*, ii. 149. 1835. 149. t. 1. f. 1—15.

Hab. Indian Ocean.

***** Doubtful Species.**

6. LOLIGOPSIS ? PERONII.

Body fleshy, oblong; the mantle subacute at the base, and finned inferiorly. Mouth terminal, surrounded with eight sessile and equal arms.

Loligopsis Peronii *Lamck.* *Cours de Zool.* 123. 1812, *An. s. Vert.* vii. 659.; *Férussac*, *Dict. Class.* ii. 68.; *Féruss. et D'Orb. Tab. Céph.* 57.; *D'Orb. Moll. Viv. et Fos.* i. 372.

Sepia sepiola Peronii *LeSueur*, *Journ. Acad. Nat. Sc. Philad.* ii. 100. 1821.

Sepiola minima *LeSueur*, l. c. 100. 1821.

Loligo parvula Péron, *MS.* (fide de Blainville).

Loligo Peronii Blainv. *Journ. de Phys.* 1823, p. 124., *Dict. des Sc. Nat.* xxvii. 136.

Hab. South Seas.

7. *LOLIGOPSIS* ?? *CHRYSOPTALMOS*.

Body elongate, narrow; a large oval eyed spot on the middle of the ventral surface.

Loligopsis chrysophtalmos D'Orb. *Moll. Viv. et Fos.* i. 373. n. 4.

Sepia chrysophtalmos Tilesius Krusenstern, *Voy. Atlas*, t. 88. f. 32. 33.

Loligopsis Tilesii Féruss. *Calmars*, t. 1. f. 2, 3, 4. 1825.

L. chromorpha D'Orb. l. c. 373. 1845.

Hab. Japan.

8. *LOLIGOPSIS* *DUBIA*.

Perothis dubia Rathke, *Mém. Acad. Imp. Pétersb. par divers savans*, ii. 148. t. 1. f. 16, 17. 1835.

Hab. ——— ?

33. *Mantle free; furnished with two internal cartilaginous Ridges on the ventral Side, and a central one in the middle of the dorsal Side.*

α. *Eyes naked.*

FAM. III. *CHIROTEUTHIDÆ*.

Animal semipellucid.

Body elongate, tapering behind. Mantle supported by two oblong cartilages placed on the inside of the mantle, with grooves on the base of the siphuncle, and a ridge or groove on the middle of the back. Fins on the sides of the hinder part of the back.

Head moderate. Ears without any crest. Eyes lateral, sessile, naked, without any lacrymal sinus. Buccal membrane short. Buccal aquiferous opening distinct.

Arms very long. Tentacular arms not retractile, external to the web.

Siphuncle without any superior central band or internal valve.

Shell internal, horny, elongate, slender, without any chambers.

Loligopsidæ (pars) D'Orb. *Moll. Viv. et Fos.* i. 377.

Cranchia sp. Férussac, *Mag. Zool.* 1834.

Loligopsis sp. Férussac, *Mag. Zool.* 1834.

Synopsis of the Genera.

1. CHIOTEUTHIS. Arms free; cartilages of the mantle dilated below. Rings of cups contracted in the middle. Shell slender, dilated at each end.
2. HISTIOTEUTHIS. Three upper pairs of sessile arms webbed nearly to the end; cartilages of mantle linear, elongate. Rings of cups convex externally. Shell broad, pennate.

A. *Shell narrow, rather dilated at each End. Base of long Arms with scattered Cups.*

1. CHIOTEUTHIS.

Body elongate, conical. Fins on the hinder part of the sides of the back.—*Head* elongate, depressed, narrowed behind the eyes, without any cervical crest. Eyes large, prominent; aperture oval, not contractile. Buccal membrane thin, seven-lobed; buccal aquiferous apertures six, distinct.—*Arms* very long. Sessile ones conical, subulate, rounded, webbed at the base; cups very small globular, oblique, strongly peduncled, in two alternate lines; ring very oblique, with a circular depression. Tentacular arms exceedingly long, very slender, cylindrical; with small alternate cups scattered on their whole length. Club lanceolate, terminating in a fleshy cup; sides with a broad membrane; cups in four rows, on long cylindrical peduncles swollen at the end, and bearing a second pedicle carrying a hood-like horny ring edged at the base, with a lateral aperture armed with teeth.—*Siphuncle* short, without superior band or valve. The cartilage on the side of the siphuncle oval, transverse, with a large tubercle on each side of the oblong cavity; mantle with an oblong cartilage, larger beneath, and with a pit on each side to receive the tubercles on the siphuncle.—*Shell* internal, horny, very slender, slightly dilated into a narrow lanceolate expansion at each end.

Chiroteuthis D'Orb. *Céphal. Acétab.* 1839, *Ann. Sci. Nat.* xvi. 1841; accidentally confounded with Cirroteuthis Gray, *P. Z. Soc.* 1847, 205.

Loligopsis sp. *Féruss. Mag. Zool.* 1834; *Verany, Acad. Torino.*

1. CHIOTEUTHIS VERANYI.

Body smooth: fins semicircular, together heart-shaped. Head large. Sessile arms very large, rounded, acuminate, unequal; order of length, 4, 3, 2, 1; rings of the three upper pairs with very close acute teeth, longest on the broader side. Tentacular

arms twelve times as long as the body, with a lanceolate club. Shell very narrow; the lowest part with the longest and broadest expansion.

Loligopsis Coindetii *Verany, MS.*

Loligopsis Veranyi *Féruss. Mag. de Zool.* 1834, t. 65., *Règne Animal de Cuv.* t. 6.

Chiroteuthis Veranyi *D'Orb. Céph. Acét. Calmars*, t. 2. t. 4. f. 17—23. 1839, *Moll. Viv. et Fos.* i. 377. t. 24.

Hab. Mediterranean.

2. CHIOTEUTHIS BONPLANDI.

Body elongate, conical. Head moderate. Fins half the length of the body, together rhomboidal. Sessile arms subulate, with rounded tubercles at the end, unequal; order of length, 3, 2, 1, 4. Shell very narrow in the middle; narrow above, and dilated below.

Chiroteuthis Bonplandi *D'Orb. Moll. Viv. et Fos.* i. 378. 1845.

Loligopsis Bonplandi *Verany, Acad. di Torino*, i. 2d ser. t. 5. 1837.

Hab. Atlantic Ocean.

B. *Shell lanceolate, pennate.*

2. HISTIOTEUTHIS.

Body short, cylindrical, pointed behind; cartilage on siphuncle with a deep groove, with raised edges; those on the mantle longitudinal, larger below. Fins large, rounded, on the sides of the ends of the body; nicked before and behind.—*Head* very large, cylindrical, without any cervical crest. Eyes large, naked, not prominent, with an external aperture without any lacrymal sinus or contractile eyelids. Buccal membrane broad, extensile, six-lobed, without any cups. Four buccal aquiferous openings, one on each side of the base of the upper and lower arms; and two brachial openings on the outside of the tentacular arms; no anal opening. — *Sessile arms* large, voluminous, rather unequal; the three upper pairs united by a web near to the end; lower pair free; cups very small, oblique, fleshy, peduncled, in two rows very far apart. Tentacular arms outside of the web; club lanceolate, finned externally, and with a membrane on the sides; cups in six alternate lines, rather oblique; rings armed with acute teeth.—*Siphuncle* very short, thick. — *Shell* horny, flexible, lanceolate, pennate; expansion, thin; narrow above, with a longitudinal central ridge.

Histioteuthis *D'Orb. Céphal. Acétab.* 1839, *Ann. Sc. Nat.* xvi.

1841, *Moll. Cuba*, i. 7. 1841, *Moll. Viv. et Fos.* i. 79. t. 253.
1848; *Desh. in Lamck. Hist.* xi. 237.; *Gray, Proc. Zool. Soc.*
1847, 205.

Histioteuthys Verany, Cat. Invert. 17. 1846.

Cranchia sp. *Féruss. Mag. de Zool.* 1835, p. 66.

1. HISTIOTEUTHIS BONELLIANA.

Body short, obtuse. Head very large; and head, body, and arms, scattered with tubercles. Sessile arms subequal, fleshy. Fins semicircular, broad. Shell broad, lanceolate.

Cranchia Bonelliana Féruss. Mag. de Zool. 1835, p. 66.

Histioteuthis Bonelliana D'Orb. Céph. Acét. Cranchies, t. 2. 1839,
Moll. Viv. et Fos. i. 380. t. 25.

Hab. Mediterranean, near Nice. *Verany.*

2. HISTIOTEUTHIS RUPPELLII.

Body, head, and arms granular. Head large. The second and third pairs of arms longer, first and fourth shorter. Cups blue. Fins ———.

Histioteuthis Ruppellii Verany, Congress. Milano, e Cat. Anim. Inv. Genova, 17. 28. n. 53. t. 3.

Hab. Genoa.

Perhaps only a variety of the former.

FAM. IV. ONYCHOTEUTHIDÆ.

Body elongate, fleshy. Fins posterior, dorsal, angular, together rhomboidal. Mantle supported by cartilaginous tubercles and loops in front. Anal aquiferous opening distinct.

Head moderate, cylindrical. Eyes lateral, naked, with a deep lacrymal sinus at the upper edge. Buccal membrane large. Ears with a well marked longitudinal crest.

Tentacular *arms* with a rounded group of small sessile cups at the extremity of the club.

Siphuncle with one or two bands on each side above, and with a distinct internal valve.

Shell internal, horny, lanceolate, without any air-chambers.

Teuthidæ (pars) *Owen, Trans. Zool. Soc.* ii. 1838.

Teuthidæ *D'Orb. Moll. Viv. et Fos.* i. 382. 1848.

Onychoteuthidæ *Gray, Proc. Zool. Soc.* 1847, 206.

*Synopsis of Genera.**A. Tentacular and sessile Arms with claw-like Hooks.*

1. *ENOPLOTEUTHIS*.—Fins subterminal, dorsal, rhombic. Sessile arms with hook only. Shell pennate, lanceolate.
2. *ANCISTROCHEIRUS*.—Fins occupying the whole side of the back, rhombic. Sessile arms with hooks only. Shell dilated at each end.
3. *ABRALIA*.—Fins subterminal. Sessile arms with hooks at the base and cups at the tip. Shell lanceolate, concave on the edges.
4. *OCTOPODOTEUTHIS*.—Fins on the hind part of the back, roundish. Shell narrow.
5. *ACANTHOTEUTHIS*.—Fins ————— ? Shell narrow, gradually dilated above.

B. Tentacular Arms with Hooks. Sessile Arms with Cups and Rings.

6. *ONYCHOTEUTHIS*.—Club of tentacular arm with hooks. Shell lanceolate, pennate, sides thin.
7. *ANCISTROTEUTHIS*.—Club of tentacular arm with hooks only. Shell narrow, rather dilated in front, with one central and two marginal ribs.
8. *ONYCHIA*.—Club of tentacular arm with hooks on the centre, and with two rows of small cups on each side. Shell lanceolate, pennate.

C. Tentacular and sessile Arms with Cups and horny Rings.

9. *OMMASTREPHEIS*.—Fins rhombic, posterior, caudal. Internal cartilage of mantle dilated below. Shell narrow, dilated in front with one central and two marginal ribs.

*A. Tentacular and sessile Arms furnished with Hooks.*1. *ENOPLOTEUTHIS*.

Body elongate, with regular longitudinal lines of minute tubercles beneath; sometimes produced into a more or less elongate acute tail. Fins angular, on the hinder part of the back; together rhombic.—*Head* rather large, subcylindrical. Buccal membrane eight-lobed; two upper bands distinct, and inserted between the two dorsal arms.—*Sessile arms* with a series of closed horny claw-like hooks, enlarged at their base, and

covered with a closely fitting membrane. Tentacular arms slender, feeble, scarcely clubbed, armed with hooks only.—*Siphuncle* with two superior central bands. — *Shell* pennate, lanceolate, sometimes sinuous at the side, and without any appendix at the tip; the central ridge narrow, keeled, produced in front.

Enoploteuthis D'Orb. *Moll. Viv. et Fos.* i. 398., *Céph. Acét.* 1839; *Gray, Proc. Zool. Soc.* 1847, 206.

Loligo sp. *Leach, Zool. Misc.* 1817.

Onychoteuthis sp. *Férussac, Tab. Syst.* 26. 1821.

Onychoteuthis sp. *Férussac & D'Orb. Tab. Céphal.* 1825; *Verany, Mem. Acad. Torino*, 1837.

Ommastrephes (pars) *Gray, Proc. Zool. Soc.* 1847, 206.

* *Body prolonged, and subvesicular behind; tubercular beneath.*

1. ENOPLOTEUTHIS SMITHII.

Head with numerous lines of small tubercles, one series extending up each side of the back of the arms. Body smooth above, with seven longitudinal lines of small rounded granules beneath; the lateral lines irregular. Sessile arms square; the dorsal pair slightly margined on the outer edge; the second pair with a broad membranous edge; hooks about sixty. Tentacular arms, lower oblong group of ten small cups, half open, rest closed; hooks ten, in two alternating lines. Shell lanceolate, rather broad, outer edge regularly arched.

Loligo *Smithii* *Leach, Tuckey's Expedition*, Appen. 411. t. . f. adult, 1817, *Zool. Miscell.* iii. 141. sp. 3.; *Blainv. Dict. Class.* 437., *Journ. de Phys.* xvi. 126.; *Féruss. Dict. Class.* iii. 67.

Onychoteuthis *Smithii* *Féruss. D'Orb. Tab. Méth. Céph.* 61. sp. 9. 1825, *Céphal. Acéph.* t. 2. f. 3. cop. from Leach.

Loligo *leptura* *Leach, Zool. Miscell.* iii. 141. sp. 21. p. 3. 1817; *Tuckey's Exped. Congo*, App. iv. 411. t. f. 1817, *Journ. de Phys.* lxxxvi. 395. t. i. 3. 5.; *Blainv. Dict. Sc. Nat.* xxvii. 137., *Journ. de Phys.* xvi. 126.; *Féruss. Dict. Class.* iii. 67. n. 9., *Atlas*, t. f. 3. all from Leach.

Onychoteuthis *leptura* *Férussac, Céphal. Acét. Onychoteuthis*, t. 2. f. 4. 1828, cop. from Leach.

Onychoteuthis *leptura* *Férussac, Céph. Acét. Onychoteuthis*, t. 6. 11. f. 6—14. 1839.

Enoploteuthis *leptura* *D'Orb. & Féruss. Moll. Céph. Acét. Onychoteuthis*, t. 12. f. 20. 1839; *D'Orb. Moll. Viv. et Fos.* i. 399. t. 27. f. 1—9., *Paléon. univer.* t. 17. f. 1—9.

Hab. Atlantic Ocean.

a. W. Africa, lat. 1° 8' N., long. 26° 30' E. Adult. In

spirits. Hinder part of body produced, subvesicular. Presented by J. Cranch, Esq., Congo Expedition.

Loligo Smithii Leach.

b, c. West Africa, lat. $1^{\circ} 8' N.$, long. $26^{\circ} 30' E.$ Half-grown, not good state. In spirits. Hinder part of body suddenly contracted into a short tail. Presented by J. Cranch, Esq., Congo Expedition.

Loligo leptura Leach.

d. West Africa, lat. $1^{\circ} 8' N.$, long. $26^{\circ} 30' E.$ The head and arms only. Presented by J. Cranch, Esq., Congo Expedition.

2. ENOPLOTEUTHIS MARGARITIFERA.

Body elongate. Fins rhombic, about two-thirds the length of the body, acute on the sides. Eyes with five round tubercles on the ventral side. Sessile arms rounded behind, not finned; the third and fourth pairs much thicker. Tentacular arms scarcely enlarged above, subulate, and unarmed at the tip, with a small round group of four or five cups at the base, and three or four small hooks in the middle. Shell broad lanceolate, thin, transparent.

Enoploteuthis margaritifera Rüppell, *Giornale del Gabin. di Messina*, xxvi. 1844, 2. f. 1.

Hab. Sicily, Messina. Rüppell.

a, b. Messina. In spirits. From Dr. Rüppell's Collection.

c. The shell of *a.* in spirits.

3 ENOPLOTEUTHIS VERANY.

Body conical. Fins rhombic, half as long as the body, large angular on the sides. Second pair of arms finned on the outer side.

Enoploteuthis Verany Rüppell, *Giorn. del Gabin. di Messina*, xxvi. 1844, 3. f. 2.

Hab. Genoa.

4. ENOPLOTEUTHIS OWENII.

Body conical, pointed behind. Fins rhombic, more than half the length of the body, nicked in front, rounded on the sides.—Rosy white.

Enoploteuthis Owenii Verany, *Congress. di Napoli, Cat. Anim. Invert. Genova*, 17. 29. n. 54. t. 6. f. 2, 3.

Hab. Genoa. Perhaps the same as *E. Verany*.

**** Body unknown.**

5. ENOPLOTEUTHIS UNGUICULATA.

Sessile arms with hooks on the whole of its length.

Large Sepia *Banks, Voy. Cook, 1st Voy. ii. 301.*

Sepia unguiculata *Molina, Saggio sul Stor. Nat. del Chili, 199. 1789; Gmel. Syst. Nat. edit. 13. p. 3150.; Turton, Syst. Nat. iv. 119.; Bosc, Buffon, de Deterv. v. 47. t. 1.; Leach, Tuckey's Exped. Congo, 411. note.*

Le Poulpe unguiculé *Montfort, Buff. de Sonnin. Moll. iii. 99. 1802.*

Loligo unguiculata *Blainv. Dict. Sc. Nat. xxvii. 140. 1823, Journ. de Phys. xcvii. 128.; Féruss. D'Orb. Tab. Méth. Céph. 61., Ann. des Sc. Nat. iv.*

Onychoteuthis *Molinæ Lichtenst. Isis, 1818, p. 1592. n. 2.*

Enoploteuthis *Molinæ D'Orb. Moll. Viv. et Fos. i. 402.*

Hab. Pacific Ocean. A sessile arm in Mus. Col. Surg. London.

***** Fossil Species.**

6. ENOPLOTEUTHIS SUBSAGITTATA.

Loligo subsagittata *Munster, Taschenb. 1836, 582. 1839, t. 375., Beitrag. Petref. 107. t. 10. f. 3.*

Enoploteuthis subsagittata *D'Orb. Paléont. univ. t. 19., Paléont. étrang. t. 13., Moll. Viv. et Fos. i. 399.*

Hab. Upper Oxford. Lithographic stone.

2. ANCISTROCHEIRUS.

Body subcylindrical. Fins occupying nearly the whole length of the sides of the back. — Sessile *arms* very large, long, rounded externally; hooks in two indistinct alternate lines; no cups. Tentacular arms long, moderate; hooks elongated. — *Shell* narrow, lanceolate, central groove very broad, slightly convex, gradually produced at the end.

Enoploteuthis sp. *D'Orb. Céph. Acét. 1839, Moll. Viv. et Fos. 402.*

Onychoteuthis sp. *D'Orb. Céph. Acét. 1835.*

1. ANCISTROCHEIRUS LESUEURII.

Body elongated, acuminate, produced, with regularly disposed tubercles underneath. Fins triangular Arms elongate. Shell narrow, lanceolate; central groove very broad, shallow.

Onychoteuthis *LeSueurii Féruss. & D'Orb. Céph. Acét. Onych. t. 11. f. 1—5. animal, 1835.*

Enoploteuthis LeSueurii D'Orb. & Féruss. *Céph. Acét, Onych. t.* 14. f. 4—10. details, 1839; D'Orb. *Paléont. univ. t.* 17. f. 10., *Paléont. étrang. t.* 14. f. 10., *Moll. Viv. et Fos. i.* 402. t. 27. f. 10.

Hab. Indian Ocean.

3. ABRALIA.

Body smooth above, granular beneath, with scattered larger tubercles. — *Head* granular. — Sessile *arms* elongate, with a single series of alternating hooks at the base, and a double row of hemispherical cups at the tip. Tentacular arms long, slender; club distinct, with a few long acute hooks alternating with a series of cups, and with two rows of cups only at the tip. — *Shell* lanceolate, sinuous at the edge near the tip; central ridge narrow, keeled, and produced above.

Enoploteuthis sp. D'Orb. *Céph. Acét.* 1839, *Moll. Viv. et Fos.* 402.
Onychoteuthis sp. D'Orb. *Céph. Acét.* 1835.

1. ABRALIA ARMATA.

Body elongate, smooth above, minutely tuberculated underneath; the larger tubercles regularly disposed. Fins triangular, together very broadly lanceolate, terminal. Sessile arms slender; the third and fourth pairs with two marginal series of small tubercles; second, third, and fourth pairs crested externally. Tentacular arms slender, basal group of three or four cups; hooks four, long, acute. Shell lanceolate, sinuated at the sides near the top.

Onychoteuthis armata Quoy & Gaim. *Voy. Ast. Zool. ii.* 84. t. 5. f. 14—22. 1833; Cuv. *Rég. Animal, Illust. t.* 2.

Enoploteuthis armata D'Orb. *Céph. Acét. Onychot. t.* 9. f. 2. 6. t. 14. f. 11—14. details, 1839, *Paléont. univ. t.* 17. f. 11, 12., *Paléont. étrang. t.* 14. f. 11, 12., *Moll. Viv. et Fos. i.* 404. t. 27. f. 11, 12.

Hab. Indian Ocean, Moluccas.

2. ABRALIA MORISII.

Body conical, smooth, not enlarged behind. Fins very large, occupying two thirds of the length, triangular, together rhomboidal, strongly nicked in front. Head large, sessile. Shell lanceolate, broad, somewhat sinuated on the sides. Arms unequal, the lower ones longest.

Enoploteuthis Morisii D'Orb. *Moll. Viv. et Fos. i.* 401.

Onychoteuthis Morisii Verany, Mem. del Acad. Torino, t. 1. t. 4. (1837).

Hab. North Atlantic Ocean.

4. OCTOPODOTEUTHIS.

Body conical, tapering behind. Eyes naked? Skin round the eyes contractile? Fins large, rounded on the hinder part of the back, separated by a notch in front, united behind. Mantle with two oblong ridges inside, and with two grooves on the base of the siphuncle, free on the back, with central ridge fitting into a cervical groove. — Sessile *arms* cylindrical, curled at the end; with a double series of small, nearly sessile, subcylindrical cups, armed with short curved hooks. Tentacular arms very short; club small. — *Siphuncle* conical, with two medial superior bands. — *Shell* cartilaginous, very slender, as long as the back.

Octopoteuthis Rüppell & Krohn in Giorn. del Gabinetto di Messina, xxvi. 1844, 6.

Octopodoteuthis Rüppell, MS. 1845; Gray, Proc. Z. Soc. 1847, 205. n. 795.

Verania Krohn, Erichson, Arch. 1847; Verany, Cephal. ex Sicilia, t. i.

1. OCTOPODOTEUTHIS SICULA.

Sessile arms rounded externally; the third pair rather the strongest. Fins rounded, about three fourths the length of the body, wider than the length of the body, continued over the back, with an acute notch behind, a rounded one above.

Octopoteuthis Sicula Rüppell & Krohn, in Giorn. del Gabinetto di Messina, xxvi. 1844, 6.

Verania Sicula Krohn, Erichson, Arch. 1847, t. . f. .; Verany, Cephal. ex Sicilia, t. 1. f. 4.

Hab. Sicily.

a. Sicily. In spirits. From Dr. Edward Rüppell's Collection.

5. ACANTHOTEUTHIS.

Fossil. Animal elongate, cylindrical. Fins terminal, short, angular. — *Arms* ten, rather unequal, with two lines of hooks. — *Shell* internal, horny, elongate, tapering, broad above, pointed behind, without any terminal appendix, and with a central longitudinal groove gradually becoming wider and less evident above.

Kalæno *Munster*, 1836, not *Munster*, 1842; *D'Orb. Paléont. Franç.* 1842, *Moll. Viv. et Fos.* i. 162.

Acanthoteuthis *Wagner*, 1839; *D'Orb. Moll. Viv. et Fos.* i. 407, 1847, *Desh. in Lamck. Hist.* xi. 238.

Onychoteuthis sp. *Munster*, 1837.

Loligo sp. *Rüppell*, 1829.

1. ACANTHOTEUTHIS PRISCA.

Body elongate, subcylindrical. Fins terminal, angled. Shell depressed, three-keeled, conical.

Loligo priscus *Rüppell, Abbild. und Besch.* 8. t. 3. f. 1. 1829.

Onychoteuthis angusta *Munster, Lehrb.* 404. 458. 1830, 250—630. 1836, 252. 1837.

Kelæno spinosa *Munster, MS.* 1836.

Kelæno Ferussacii *Munster, MS.* 1836.

Kelæno sagittata *Munster, MS.* 1836.

Onychoteuthis spinosa *Munster, Lehrb.* 252. 1837.

Onychoteuthis Ferussaci *Munster, Lehrb.* 252. 1837.

Onychoteuthis sagittata *Munster, Lehrb.* 252. 1837.

Onychoteuthis subovata *Munster, Lehrb.* 252. 1837.

Onychoteuthis tricarinata *Munster, Lehrb.* 252. 1837.

Onychoteuthis lata *Munster, MS.*

Kelæno speciosa *D'Orb. Paléont. Franç.* i. 140. n. 35. t. 23. f. 1—4. 1842.

Acanthoteuthis Ferussacii *Munster, Beitr.* i. 104. t. 10. f. 1. 1839; *Chenu. Leçon. élém. H.N.* 238. f. 761.

Acanthoteuthis Lichtensteinii *Munster, i.* 105. t. 10. f. 2. 1839.

Acanthoteuthis speciosa *Munster, Beitr.* i. 105. t. 9. 1839.

Acanthoteuthis brevis *Munster, Beitr.* v. t. 1. f. 3. 1842.

Acanthoteuthis prisca *D'Orb. Paléont. univ.* t. 19, 20, 21. 1845, *Paléont. étrang.* t. 16, 17, 18., *Moll. Viv. et Foss.* i. 409. t. 28.

Fos. Upper Oxford Clay, Lithographic stone.

B. *Cup of tentacular Arms with claw-like Hooks; of sessile Arms with Rings.*

6. ONYCHOTEUTHIS.

Body elongate, subcylindrical, smooth, acuminate behind. Mantle with an elongated, narrow, prominent, longitudinal ridge, fitting into a similar groove on the base of the siphuncle. Fins terminal, very broad, together rhomboidal.—*Head* large, rather depressed, with three or eleven longitudinal ridges, and edged behind by a transverse ridge. Eyes large, lateral. Buccal membrane extensile, seven-lobed, without cups. A brachial aquife-

rous pore on each side, between the third and fourth pairs of arms. Six buccal pores and an anal pore above the siphuncle. — Sessile arms angular; third or fourth pair with a keel or fin; cups in two alternating lines; rings convex and toothless. Tentacular arms partly retractile, strong; club enlarged, with a rounded group of small sessile cups at each end, and two series of claw-like hooks, the outer series largest. — *Siphuncle* very short, lodged in a cavity, with two superior muscular bands. — *Shell* lanceolate, pennate, as long as the back; tip acute; end produced, narrow; sides dilated, thin, with a central longitudinal keel contracted at the end.

Onychoteuthis (pars) *Licht. Berl. Acad.* 1818; *Isis*, 1819, 1591. 1820; *Blainv. Malac.* 1825; *Desh. in Lamck. Hist.* xi. 237.; *D'Orb. Moll. Viv. et Fos.* i. 386.

Sepia sp. *Fabricius, Faun. Groenl.* 359.; *Molini.*

Loligo sp. *Leach, Blainville, LeSueur, Ann. Sci. Philad.*

Onykia sp. *LeSueur, Ann. Sci. Philad.* ii. 99. 1821, ii. 296. 1822.

Onyckia Lesson, Berthold, 1827?; *Latr. Fam. Nat.* 1825, not Hübner, 1816, nor Walker, 1835.

Ancistrochirus Leach, MS. Brit. Mus. 1817.

Onychoteuthis Férussac, Tab. Syst. 24. 1821.

1. ONYCHOTEUTHIS BANKSII.

Body very elongate, cylindrical, acuminate behind. Head with eleven longitudinal small prominent ridges. Fins rhomboidal. Sessile arms conico-subulate, unequal; in length, 2, 3, 4, 1; cups with a fleshy excrescence, compressed, pear-shaped. Tentacular arms very extensile, apical, armed with a double series of hooks; the basal group consisting of about seven or eight open and seven or eight not pierced cups, the apical group of sixteen or seventeen cups all open; hooks twenty to twenty-two in two rows, those of the outer row largest.

Loligo Banksii Leach, Zool. Miscell. iii. 141. sp. 4. 1817; *Tuckey's Voy. to Congo*, App. iv. 411. sp. 1.; *Blainv. Dict. Sc. Nat.* xxvii. 137., *Journ. de Phys.* lxxxvi. 125.; *Féruss. Dict. Class.* 67. n. 8.

Oncistrochirus Banksii Leach, MS. B. Mus. 1817.

Anichoteuthis Banksii Férussac, Tab. Céph. 61. 1825.

Onychoteuthis Bergii Lichtenst. Zool. Mus. des Univ. zu Berlin, p. 1592. n. 4. t. 19. f. a. 1818; *Féruss. D'Orb. Tab. Céph.* n. 5. p. 61.; *D'Orb. Moll. des Antilles*, i. 46. n. 12.; *D'Orb. et Féruss. Céph. Acét. Onychoteuthis*, t. 5. f. 1—9. from Licht.

Loligo Bergii Blainv. Dict. Sc. Nat. xxvii. 138. 1823, *Journ. de Phys.* lxxxvi. 126.; *Féruss. Dict. Class.* iii. 67.

Sepia loligo Fabricius, Faun. Groenl. 359.

Dinten-Fish *Crantz, Hist. von Groenl.* 134.

Onychoteuthis Fabricii Lichtenst. Isis, 1818, t. 19.; *Féruss. D'Orb. Céph.* 61. n. 10.

Loligo Fabricii Blainv. Dict. Sc. Nat. xxvii. 126. 1823.

Onykia angulata LeSueur, Journ. Acad. Philad. ii. 99. t. 9. f. 3. 296. t. 178. on a figure, 1821.

Loligo angulatus Féruss. Dict. Class. iii. 67. 1823.

Onychoteuthis angulata Féruss. Céph. Acét. Onych. t. 1. 1825; *D'Orb. Tab. Céph.* 60. n. 2., *Voy. Amér. Mérid. Mol.* 42.; *Guérin, Icon. Règ. Anim.*

Loligo felina Blainv. Dict. Sc. Nat. xxvii. 139. 1823, *Journ. de Phys.* lxxxvi. 125.

Onychoteuthis felina Féruss. D'Orb. Tab. Céph. 60. n. 4. 1825.

Onythoteuthis Molinæ Leach, Berl. Trans. 1818, t. 4. copied O. *Bergi Féruss. Céph. Acét. Onyth.* t. 5.

Loligo uncinatus Quoy & Gaim. Voy. Uranie, Zool. i. 410. t. 66. f. 7. 1838.

Onychoteuthis uncinata Féruss. D'Orb. Tab. Céph. 60. n. 3. 1825.

Onychoteuthis Lessonii Féruss. D'Orb. Tab. Céph. 61. n. 6. 1825, *Lesson, Voy. de la Coq.* t. 1. f. 3. from a drawing.

Onychoteuthis Fleurii Renaud, Lesson, Centurie Zool. 61. t. 17.; *Féruss. Céph. Acét. Onyth.* t. 9.

Hab. Atlantic and Indian Oceans.

a. Africa. Small. In spirits. Presented by J. Cranch, Esq., Congo Expedition.

L. Banksii Leach, 1817.

b. The shell of *a.* dry.

Ancistrochirus Banksii Leach, MS. 1817.

2. ONYCHOTEUTHIS BARTLINGII.

Body elongate; back with a central transparent line over the keel of the shell. Fins posterior, rhombic, angular. Sessile arms slender; dorsal pair rounded externally, with a slight fin on the upper part; the second, third, and fourth pairs finned on the outer side nearly the whole length. Tentacular arms with six large hooks. Shell dark brown, lanceolate, pennate, with a short central keel above and ridge beneath, thin.

O. Bergii Licht. ? Féruss. Céph. Acét. Onyth. t. 7.

Loligo Bartlingii LeSueur, Jour. Acad. Phil. 95. t. cop. *Féruss. Céph. Acét.* t. 3.

Onythoteuthis Bartlingii Féruss. Céph. Acét. Onyth. t. 3.

Onythoteuthis Banksii (pars) D'Orb. Moll. Viv. et Fos. i. 386. t. 26. f. 1. 7. from *Féruss. Céph. Acét.* t. 7.

Onythoteuthis LeSueurii Féruss. Céph. Acét. t. 4. from LeSueur's specimen.

Hab. Indian Ocean.

- a.* Borneo. ? In spirits. Half-grown. Presented by Capt. Sir Edward Belcher, C.B. R.N.
- b.* Shell of *a.*
- c.* New Zealand. In spirits. Adult. Presented by A. Sinclair, M.D. R.N.
- d.* Shell of *c.*

7. ANCISTROTEUTHIS.

Body smooth.—Tentacular *arms* with a round group of small cups with rings at the base and apex of the club; and with two alternating series of hooks; the upper series the largest.—*Shell* horny, linear, very narrow, gradually widening to the front or upper end; sides thickened on the edge; apex conical, long, and obliquely produced, horny.—Otherwise like *Onychoteuthis*.

* *Body* smooth.

1. ANCISTROTEUTHIS LICHTENSTEINII.

Head large, with eight longitudinal ridges. Body elongate, narrowed posteriorly, produced. Fins triangular, together rhomboidal. Sessile arms subulate, unequal; in length, 4, 3, 2, 1; cups very much crowded; rings with entire edges; dorsal pair rounded behind; second pair slightly; third pair broadly webbed in the middle, externally; fourth pair webbed externally at the base. Tentacular arms; the basal group of cups twenty-one, about half closed; the apical group sixteen or seventeen, all open, and with rings; hooks twenty-two. Shell depressed, narrowed, transparent; apex longly produced, solid, cartilaginous, compressed.

Onychoteuthis Bellonii Féruss. & D'Orb. *Céph. Acét.* 1835.

Onychoteuthis Lichtensteinii Féruss. *MS.* 1834; *Féruss. et D'Orb. Céph. Acét. Onych.* t. 8. anim., t. 14. f. 1—3. shell, 1839; *D'Orb. Moll. Viv. et Fos.* i. 391. t. 26. f. 8—12.

Hab. The Mediterranean, near Nice.

- a.* Mediterranean, Messina. In spirits. Adult.
- b.* The shell of *a.*
- c.* Mediterranean. In spirits. Adult. Presented by P. B. Webb, Esq.

2. ANCISTROTEUTHIS KROHNII.

Tentacular arms short; club with a series of hooks on one, and of small cups on the other, margin. Shell linear, narrow at the base, margined on the edge, rather wider above the middle; the apex with a conical produced tip.

Onychoteuthis Krohnii Verany, Ceph. ex Sicilia, t. 1. f. 3.

Hab. Sicily.

** *Body shagreened.*

3. ANCISTROTEUTHIS DUSSUMIERI.

Body elongate, subcylindrical; very finely shagreened with very crowded, small, acute tubercles. Fins short, together rhomboidal. Sessile arms unequal; in length, 2, 4, 3, 1; with a longitudinal groove. Tentacular arms very slender, without any club, with thirty hooks in two series; rings of cups oblique, entire. Shell narrow; the apex with a very long conical very acute solid horny tip.

Onychoteuthis Dussumieri D'Orb. Moll. Viv. et Fos. i. 392.; *D'Orb. et Féruss. Céph. Acét. Onych.* t. 13. 1839.

Hab. Indian Ocean, 200 miles north of Mauritius.

8. ONYCHIA.

Body red, spotted.—Tentacular arms scarcely enlarged at the end, with two longitudinal series of claw-like hooks in the centre of the club, and a row of pediceled cups on each side furnished with horny rings.—*Shells* lanceolate, pennate, dilated above and narrow in front, with a central ridge.—Otherwise like *Onychoteuthis*.

Onykia LeSueur, Jour. Acad. N. S. Philad. i. 98. 1821, ii. 296. 1822.

Onychia Latr. Fam. Nat. 1825; *Berthold*, 1827; *Gray, Proc. Zool. Soc.* 1847.

Onychoteuthis sect. ii. *D'Orb. Moll. Viv. et Fos.* i. 386.

Onychoteuthis sp. *Férussac, Tab. Syst.* 28. 1821; *D'Orb. et Féruss. Céph. Acét.* 1839.

Sepiola sp. *LeSueur*, l. c.

Cranchia Péron.

Cranchia sp. *Férussac, Dict. Class. H. N.* v.

Loligo sp. *Péron.*

Sepia sp. *Oken.*

Sepiola sp. *LeSueur.*

* *Fins* terminal, very short. *Cups* subequal.

1. ONYCHIA CARDIOPTERA.

Body large, oblong, narrowed, and prolonged behind, variegated with red spots; fins round, terminal, together subrhomboidal. Sessile arms unequal; in length, 3, 2, 4, 1; cups in two alternating lines. Tentacular arms long, scarcely enlarged at the end. Shell pennate, rather broad, sides rounded.

Loligo Cardioptera Péron, Voy. Atlas, t. 60. f. 5. 1804; Blainv. Journ. de Phys. 123., Dict. des Sc. Nat. xxvii. 135.

Sepiola Cardioptera LeSueur, Journ. Acad. Nat. Sc. Philad. ii. 100. 1821.

Cranchia Cardioptera Féruss. Dict. Class. Atlas, t. 5. 1823; D'Orb. Tab. Méth. Céph. 58.; Féruss. et D'Orb. Céph. Acét. Cranchie, t. 1. f. 2, 3. cop. Péron; D'Orb. Voy. Am. Mérid. Moll. 34.

Sepia Cardioptera Oken, Lehrb. des Zool. 343. n. 5.

Onychoteuthis Cardioptera D'Orb. Moll. des Antilles, i. 53. n. 13. 1838, Moll. Viv. et Fos. i. 389.

Onykia Caribæa LeSueur, Journ. Acad. Nat. Sc. Philad. ii. 98. t. 9. f. 1, 2. 1821.

Loligo Caribæa Blainv. Dict. Sc. Nat. xxvii. 139. 1823, Journ. de Phys. lxxxvi. 127.; Féruss. Dict. Class. iii. 67. Atlas, f. 4.

Onychoteuthis Caribæa Féruss. Céph. Acét. Onych. t. 5. f. 4. 7. from LeSueur; D'Orb. Tab. des Céph. 60., Moll. des Antilles, i. 57. n. 14.

Onychoteuthis Leachii Féruss. Céph. Acét. Onych. t. 10. f. 1. 4., shell represented as expanded at each end.

Hab. Atlantic Ocean.

*** Fins dorsal. Cups of lateral Arms unequal.*

2. ONYCHIA PLATYPTERA.

Body cylindrical, smooth; fins elongate, triangular, together narrow lozenge-shaped. Sessile arms long, unequal; in length, 3, 4, 2, 1; cups very unequal, especially of the lateral arms. Tentacular arms short, not enlarged at the end; basal group of twenty-two cups half open, rest closed; hooks twelve. Shell broad, lanceolate; apex with a conical, horny, compressed appendix at the tip.

Onych. platyptera D'Orb. Voy. Am. Mérid. Moll. 41. t. 3. f. 8. 11. 1835; D'Orb. et Féruss. Céph. Acét. Onych. t. 10. f. 8-10. t. 14. f. 16-22. details; D'Orb. Moll. Viv. et Fos. i. 393. t. 26. f. 13.

Onych. peratiptera D'Orb. Voy. Am. Mér. 39. t. 3. f. 5-7. cop. 1835; Féruss. et D'Orb. Céph. Acét. Onychoteuthis, t. 10. f. 5. 7.

Hab. Coast of Chili. Indian Ocean.

C. Cups of tentacular and sessile Arms with horny Rings.

9. OMMASTREPHEs.

Head short, cylindrical, rather depressed, rather narrowed behind the eyes, and there very prominent longitudinal ridges on the nape. Eyes very large, lateral, naked, with an oval external opening and a large lacrymal sinus. Buccal membrane very extensi-

ble, seven-lobed, without cups.—*Body* elongate, cylindrical, very long, acuminate behind, truncated, square in front. Cartilages on base of siphuncle, contracted below and with a tubercle on each side, on inside of mantle enlarged, thick, and with transverse rib below. Fins posterior, terminal, very broad, together forming a transverse rhomboid. Aquiferous pores between the third and fourth pairs of arms; four buccal pores, one on each side of the base of the first pair, and one on each side between the third and fourth pair, communicating with a large cavity, which surrounds the mouth; two anal pores on each side of the siphuncle, outside of the external band.—*Sessile arms* conical, subulate, upper and lower quadrangular, the others triangular, compressed, unequal; in the following order, 3, 2, 1, 4; cups very oblique, fleshy, distinct; rings oblique, toothed. Tentacular arms not retractile, short, strong, thick, with a slight longitudinal ridge, scarcely enlarged at the end, webbed at the tip; cups oblique, fleshy, in four alternate lines, two middle series large, two lateral small, with a rounded basal and apical group of small sessile cups.—*Siphuncle* lodged in a cavity, short, broad, with superior medial bands, and an internal valve above.—*Shell* horny, flexible, as long as the body, narrow, gradually wider above, with a central and two marginal ribs; apex with a hollow conical cavity, without any septa.

Living in the high seas in large troops, nocturnal; the food of Cetacea and pelagic birds.

Calamar flesches *Blainv. Dict. Sci. Nat.* 1823.

Cyceria *Leach, MS.* 1817.

Ommastrephes *D'Orb. Moll. Viv. et Fos. i.* 412. 1845; *Desh. in Lamck. Hist.* xi. 239; *Gray, Proc. Z. Soc.* 1847, 206.

? Peroteuthis *Ehrenb.*

Loligo sp. *Lamck., Rüppell.*

Sepia sp. *Linn.*

Onychoteuthis sp. *Munster.*

§ *Body* opaque, fleshy, smooth above and below. *Cups* of sessile
Arms equal, moderate.

* *Second and third Pairs* of sessile Arms without any membranaceous Fringe on the inner Edge of the ventral Side, but only a Series of small conical Tubercles.

† *The tentacular Arms* with eight Rows of numerous small Cups at the End near the Tip.

1. OMMASTREPHEs SAGITTATUS.

Head large. Body elongate, cylindrical. Fins broad, together rhomboidal. Sessile arms thick, long; rings of cups variable.

Tentacular arms elongate, compressed; club scarcely enlarged, covered only with cups, the lower ones in two series, the central in four; large of central scarcely oblique, the small lateral ones very oblique; upper part with a multitude of small cups in eight rows. Shell narrow, elongate; lateral ribs largest; apical cone large.

Sepia loligo Linn. *Syst. Nat.* edit. 12. 1095. n. 4. 1767; *Gmel. Syst. Nat.* edit. 13. 3150.; *Brug. Enc. Méth.* t. 77. f. 12.

Sepia media Barbut, *Gen. Verm.* 75. t. 8. f. 3. 1788.

Loligo sagittata var. β . Lamck. *Mém. Soc. Hist. Nat. Paris*, 13. 1799, *Anim. s. Vert.* vii. 665.; *Blainv. Faun. Franç.* 15.; *Payraudau, Cat. Moll. Corse*, 173. n. 353.; *Risso, Hist. Nat.* iv. 6. n. 8.; *Guérin, Icon. Règ. Anim.* t. 1. f. 5.; *Philippi, Enum. Moll. Sic.* 241. n. 2.; *Cantraine, Nouv. Mém. Acad. Brux.* xiii. 15. n. 1.

Calmar harper Montfort, *Buff. de Sonnin.* ii. 65. t. 14. 1805.

Loligo illecebrosa LeSueur, *Journ. Acad. Philad.* ii. 95. 1821? *Blainv. Dict. Sc. Nat.* xxvii. 142., *Journ. de Phys.* 1823, p. 130.; *Féruss. D'Orb. Tab. des Céph.* 63. n. 5., *Céph. Acét. Loligo*, t. 7. from LeSueur.

Loligo harpago Féruss. *Dict. Class.* iii. 67. n. 3. 1823.

Loligo Brongniartii Blainv. *Dict. Sc. Nat.* xxvii. 142. 1823, *Journ. de Phys.* 1823, p. 130.; *Féruss. D'Orb. Tab. des Céph.* 63., *Céph. Acét.* t. 4. 1825.

Loligo piscatorum La Pylaie, *Ann. Sc. Nat.* iv. 319. 1825; *Féruss. D'Orb. Tab. Méth. Céph.* 63. n. 6., *Céph. Acét. Loligo*, t. 5.

Loligo Coindetii Verany, *Mem. Acad. Sc. Torino*, t. 1. f. 4. 1837.

Ommastrephes sagittatus D'Orb. & Féruss. *Ommastrephes*, t. 1. f. 1—10. rings, &c. 1839; *D'Orb. Paléont. univ.* t. 22. f. 12—16., *Paléont. étrang.* t. 19. f. 12—16., *Moll. Viv. et Fos.* i. 418. t. 29. f. 12—16.

Hab. Atlantic Ocean, Newfoundland, used in the codfishery. Mediterranean.

†† *Tentacular Arms with Cups in four Rows, those in the Centre of the middle Part rather larger.*

2. OMMASTREPHEs ÆQUIPODA.

Body elongate, rather tapering behind. Fins rhombic, one third the length of the body. Tentacular arms short, naked half their length; club compressed, winged externally, with four series of regularly disposed cups, those of the sides and end equal-sized, the twentieth or twenty-second in the two central series of the middle part larger.

Loligo æquipoda Rüppell, *Giorn. del Gabin. di Messina*, xxvi. 1844.

Hab. Sicily.

a. Sicily, Messina. In spirits. From Dr. E. Rüppell's Collection.

††† *Tentacular Arms with two Series of small Cups at the Top.*

3. OMMASTREPHEs TODARUS.

Body short, thick, nearly cylindrical, spotted with red. Fins half the length of the body, broad, together rhomboidal. Sessile arms unequal; rings of cups with seven distant very oblique cutting teeth on the higher side. Tentacular arms robust, with cups nearly to the base; scarcely clubbed; cups at the base in two series, in the middle in four series, middle ones larger, with the rings with twenty acute teeth all round; at the top in two series of minute cups.

Sepia loligo Linn. *Syst. Nat.* edit. xii. 1095. n. 4. 1767; *Gmel. Syst. Nat.* edit. 13. 3150. n. 4.; *Shaw, Nat. Miscell.* t. 363.

Loligo sagittata var. a. *Lamck. Mém. Soc. Hist. Nat. Paris*, 13. 1799; *Hist. An. s. Vert.* vii. 663.; *Féruss. Dict. Class.* iii. 67. n. 2.; *Carus, Icon. Sep. Nov. Acet. Phys. Med.* xii. 318. t. 30.; *Payraudeau, Cat. desc. Moll. Corse*, n. 352.

Calmar flèche Montfort, *Buff. de Sonnin. Moll.* ii. 56. 1805.

Calmar du Brésil Montfort, *Buff. de Sonnin. Moll.* ii. 56. 1805.

Loligo todarus Rafinesque, *Préc. Découv. Som.* 1814; *Féruss. Céph. Acét. Loligo*, t. 1.

Loligo Brasiliensis Féruss. *Dict. Class.* iii. 67. n. 3. 1823.

Loligo maxima Blainv. *Dict. Sc. Nat.* xxvii. 140. 1823, *Journ. de Phys.* 1823, 129.

Ommastrephes todarus D'Orb. *Céph. Acét. Ommastrephes*, t. 2. f. 4—10. 1839, *Paléont. univ.* t. 22. f. 3. 11. t. 23. f. 5, 6., *Paléont. étrang.* t. 19. f. 3—11. t. 20. f. 5, 6, *Moll. Viv. et Fos.* i. 423. t. 29. f. 3—11. t. 30. f. 5, 6.

Hab. Mediterranean.

** *The third Pair of sessile Arms with a narrow fleshy Fin supported by cross Ribs on the inner Edge of the ventral Side; second without Rudiments of Points on the Edge.*

4. OMMASTREPHEs GIGANTEUS.

Body elongate, cylindrical superiorly, violet-coloured. Fins broad, occupying half the length, nicked in front, together transverse

rhomboidal, acute. Sessile arms, cups oblique, equal-sized; rings with acute teeth on the higher side, and smooth on the lower one. Tentacular arms naked one third their length; cups in two series, then in four; the eighteenth or twentieth central cup of the upper part very large, lateral one very small, longly peduncled and very oblique, the tip compressed, with a narrow triangular patch of a few small cups in three or four series at the base, and two series at the end.

Pernetti, Hist. Voy. aux Malouines, ii. 76. ? 1770.

Sepia tunicata Molina, Hist. Nat. du Chili, 173. ? 1789; *Gmelin, Syst. Nat.* edit. 13. 3151. sp. 8. ?; *Shaw, Nat. MS.* x. iv. t. 546. ? from Montfort, Sonnini.

Sepia nigra Bosc, Hist. Nat. des Vers, i. 47. ? 1802.

Calmar reticulé Montfort, Buff. de Sonnin. Moll. ii. 96. t. 21. ?

Ommastrephes gigas D'Orb. Voy. Am. Mérid. Moll. 50. t. 4. 1835.

Ommastrephes giganteus D'Orb. Céph. Acét. t. 1. f. 11—13. rings, 1839, *Paléont. univ.* t. 23. f. 1—4., *Paléont. étrang.* t. 20. f. 1—4., *Moll. Viv. et Fos.* i. 425. t. 30. f. 1—4.

a. Valparaiso. Young? In spirits. Mr. Bridges's Collection.

b. Shell of a.

5. OMMASTREPES SLOANII.

Body cylindrical, rather tapering behind. Fin rhombic, rather more than one third the length of the body. Sessile arms compressed; cups equal, oblique, in two rows; rings black, higher side with regular acute teeth, lower smooth; third pair acutely finned, with a narrow rayed membrane on the inner edge of the ventral side. Tentacular arms slightly keeled externally, base half-naked; cups of lower part small, in two rows, of middle four rows; the seventh pair of the central series largest; rings with distant teeth all round; of the lateral series small, longly peduncled, and very oblique; of the apical portion small, in three or four rows, the smallest one nearly sessile.

Hab. Indian Ocean.

a. New Zealand, Waitemata. Small. In spirits. Presented by A. Sinclair, M.D.

b. ? Var. ? In spirits, adult. Mus. Sloane. Fin nearly half the length of the body.

Cycria Leach, MS. 1817.

c. ? Shell of b. broken, dry; taken out by Dr. Leach.

*** *The second and third Pairs of sessile Arms with a broad membranaceous Fin on the inner Edge of the ventral Side (protectrice de cupule, D'Orb.), supported by radiating fleshy Rays arising from the Base of the Cups. Cups in two distinct Rows; ventral Part of the Mantle free from the Head.*

6. OMMASTREPHES BARTRAMII.

Body elongate, cylindrical, acuminate posteriorly, truncated anteriorly, longitudinally adorned above with a violet zone. Fins dilated, rhomboidal, acutely angled. Head short. Shell thin, elongated.

Cornet *Pernetti, Hist. Voy. aux Iles Malouines*, ii. 76. t. 11. f. 6. 1770.

Loligo Bartramii *LeSueur, Journ. Acad. Philad.* ii. 90. t. 7. 1821; *Féruss. Dict. Class.* iii. 67. n. 12.; *Blainv. Dict. Sc. Nat.* xxvii. 141., *Journ. de Phys.* 1823, 129.; *Féruss. D'Orb. Tab. des Céph.* 63., *Céph. Acét. Loligo*, t. 2. cop. *LeSueur*.

Loligo sagittatus *Blainv. Dict. Sci. Nat.* xxvii. 140. 1823, *Journ. de Phys.* 1823, p. 128.

Loligo vitreus *Rang, Mag. de Zool.* 71. t. 36. 1837.

Ommastrephes Bartramii *D'Orb. Voy. Am. Mérid. Moll.* 55. 1838, *Moll. des Antilles*, i. 59. n. 15., *Céph. Acét. Ommastr.* t. 2. f. 11—20. rings, *Paléont. univ.* t. 22. f. 1, 2. t. 23. f. 7, 8., *Paléont. étrang.* t. 19. f. 1, 2. t. 20. f. 7, 8., *Moll. Viv. et Fos.* i. 420. t. 29. f. 1, 2, t. 30. f. 7, 8.

Cycria sepiostem *Leach, MS.* 1817.

Ommastrephes cylindricus *D'Orb. Voy. Am. MÉR. Moll.* 54. t. 3. f. 3, 4. 1835.

Hab. Atlantic Ocean, Mediterranean.

a. In spirits. —————?

b, c, d, e. Cape of Good Hope. In spirits. Presented by Andrew Smith, M.D.

f. —————? In spirits, bleached. Mus. Leach. The suckers in an alternating series?

Cycria sepiostem *Leach, MS.* 1817.

g, h. —————? In spirits. Voyage, Erebus and Terror. Presented by Capt. Sir James Ross, C. B. R. N.

i. —————? In spirits. Mus. Leach.

j. —————? In spirits. Mr. Bartlett's Collection.

k. —————? In spirits. Presented by the Earl of Derby.

4* *The second and third Pairs of sessile Arms with a broad membranaceous Fin on the inner Edge of the ventral Side, supported by radiating fleshy Rays. Cups compressed, so as to be in a single Series; ventral Part of the Mantle fixed to the Head.*

7. OMMASTREPES OUALANIENSIS.

Body elongated, cylindrical. Pinnæ terminal, broad, transverse. Arms short, unequal, furnished with one row of cups. Shell elongate, narrow.

Ommastrephes oualiensis D'Orb. Moll. Viv. et Fos. i. 427.

Loligo oualaniensis Lesson, Voy. de Coquille, Zool. 240. t. 1. f. 2. 1830; Féru. Céph. Acét. t. 3.

Loligo Vanicoriensis Quoy & Gaim. Voy. Ast. Moll. ii. 79. t. 5. f. 1, 2. 1833.

Loligo brevitentaculata Quoy & Gaim. l. c. 81. 1833.

Ommastrephes oceanicus D'Orb. Céph. Acét. Calmars, t. 21. Ommastrephes, t. 1. f. 14—16., rings, 1839.

Hab. Throughout the Indian Ocean.

a. ———. In spirits. Mus. Leach.

b. ? Cape of Good Hope. In spirits, not in a good state. Presented by the Earl of Derby.

c. South Sea. In spirits, bad state. Presented by A. Menzies, Vancouver's Voyage.

§§ *Body transparent, tubercular beneath. One or two Cups on the second Pair of sessile Arms larger.—Hyaloteuthis.*

8. OMMASTREPES PELAGICUS.

Body elongate, subcylindrical, smooth above, with scattered opaque tubercles, in eight cross lines beneath. Fins about a quarter the length of the body, very thin, nicked in front, together transverse, rhomboidal, with rounded angles. Sessile arms triangular; cups in two alternate lines, longly peduncled. Tentacular arms very slender, scarcely clubbed, with a series of peduncled cups. Diaphanous white, red-spotted. Shell very thin, very slender, without any ribs, with a small terminal cone.

Sepia pelagica Bosc, Buff. de Déterv. Hist. Nat. Vers, i. 46. t. 1. f. 1, 2. 1802.

Calmar pelagica Montfort. Buff. de Sonnin. Moll. ii. 86. t. 19. 1805.

Loligo pelagicus Féru. Dict. Class. iii. 67. n. 7. 1823; D'Orb. Tab. Céphal. 63. n. 7, Céph. Acét. t. 18. f. 1, 2.

Ommastrephes pelagicus *D'Orb. Céph. Acét. Ommastrephes*, t. 1. f. 17, 18. animal, 1839, *Moll. Viv. et Fos.* i. 422.

Hab. Atlantic Ocean.

a. St. Lucia. In spirits, not good state. Presented by Miss R. Alexander.

3 § *Doubtful recent Species.*

9. OMMASTREPHEs LATICEPS.

Body subgelatinous, bluish white, red, and brown, spotted, oval, elongate, ending in an acute point. Sessile arms equal. Tentacular arms with small cups. Fins thin, rounded, terminal.— A young animal.

Ommastrephes laticeps *D'Orb. Moll. Viv. et Fos.* i. 428.

Loligo laticeps *Owen, Trans. Zool. Soc. Lond.* t. 21. f. 6—10. 1836.

Cranchia pellucida *Rang, Mag. de Zool.* 67. t. 94. (1837).

Hab. Atlantic Ocean, near equator.

10. OMMASTREPHEs ARABICUS.

Body round, gradually attenuating into an obtuse round tail. Fins rhomboidal, including half the body and the tail. Sessile arms with two rows of equal cups. Club of tentacular arms with five rows of cups, three middle rows largest; rings toothed. Shell narrow, cartilaginous.

Pteroteuthis arabica *Ehrenberg, Symbolæ Physicæ*, 1831.

Ommastrephes arabicus *D'Orb. Moll. Viv. et Fos.* i. 428. n. 12.

Hab. Red Sed, volcanic island of Ketumbal.

11. OMMASTREPHEs MENEGHINII.

Body ovate, conical, tapering behind. Fins posterior, half the length of the body, together oblong, rounded on the sides.

Loligo Meneghinii *Verany, Ceph. ex Sicilia*, t. 2. f. 1.

Hab. Sicily.

12. OMMASTREPHEs BIANCONII.

Body ovate, tapering behind. Fins posterior, together triangular, acute behind, and rounded at the outer upper angles. Shell narrow, lanceolate, wider above, contracted, and ending in a cone at the tip.

Loligo Bianconii *Verany, Ceph. ex Sicilia*, t. 2. f. 3.

Hab. Sicily.

13. OMMASTREPHESES ? EBLANÆ.

Loligo Eblanæ Ball, *Proc. Roy. Irish Acad.* 1839; *Thompson, Report of the Brit. Assoc.* 1844, p. 248.; *D'Orb. Moll. Viv. et Fos.* i. 353.

Not described.

Hab. Coast of Ireland.

14. OMMASTREPHESES GRONOVII.

Tentacular arms half as long as the body.

Sepia Gronov. *Zoophyl.* 244. n. 1028. 1781.

Loligo Gronovii Férussac, *D'Orb. Moll. Viv. et Fos.* i. 352. 1845.

Hab. Indian Ocean.

4 § *Fossil Species of Upper Oxford Clay.*

15. OMMASTREPHESES ANGUSTUS.

Shell elongate, depressed, with three ribs, dilated behind and before.

Onychoteuthis angusta Munster, *Jahrb.* 1830, 404. 458. 1836, 250. 630. 1837, 252.

Ony. Lichtensteinii Munster, *MS.* 1837.

Ony. sagittata Munster, *Jahrb.* 1837, 252. not Lamck.

Ommastrephes angustus D'Orb. *Paléont. univ.* t. 23. f. 9. 11. 1845, *Moll. Viv. et Fos.* i. 415.

Fos. Coralline layer of Upper Oxford, Solenhoffen.

16. OMMASTREPHESES INTERMEDIUS.

Shell elongate, conical above, convex, one-ribbed; behind narrow, lanceolate.

Onychoteuthis intermedia Munster, *Lehrb.* 1837, 252.

Omm. intermedius D'Orb. *Céph. Acét.* 40. 1841, *Paléont. univ.* t. 24. f. 1., *Moll. Viv. et Fos.* i. 416.

Fos. Lithographic slate, Solenhoffen.

17. OMMASTREPHESES COCHLEARIS.

Shell one-ribbed, dilated before and behind, behind lanceolate.

Onychoteuthis cochlearis Munster, *Lehrb.* 1837, 252.

Omm. cochlearis D'Orb. *Céph. Acét.* 40. 1841, *Paléont. univ.* t. 24. f. 2., *Moll. Viv. et Fos.* i. 417.

Fos. Lithographic slate, Solenhoffen.

18. OMMASTREPHESES MUNSTERII.

Shell dilated, short, spoonlike before, dilated, and longitudinally rayed; behind dilated, blunt.

Omm. Munsterii *D'Orb. Paléont. univ.* t. 24. f. 3. 1845, *Moll. Viv. et Fos.* i. 417.

Fos. Lithographic slate, Solenhoffen.

Intermediate between *Ommastrephes* and *Geoteuthis*.

b. *Eyes covered with the Skin.*

FAM. V. LOLIGIDÆ.

Body subcylindrical, oblong, rounded behind. Fins on the sides of the hinder part of the back.

Head subcylindrical. Eye without eyelid, covered by the skin, simple above. Buccal membrane distinct, often furnished with cups. Ears with a transverse ridge.

Sessile arms with two rows of cups. Rings not convex externally, and provided with a narrow prominent edge on the middle of their width. Tentacular arms only partly contractile into the subocular cavity.

Siphuncle attached to the head by a double superior medial band.

Shell internal, horny, lanceolate, pennate or spathulate, without any air cells.

Loligidæ *Gray, Proc. Zool. Soc.* 1847, 285.

Loligidæ (pars) *D'Orb. Moll. Viv. et Fos.* i. 318.

Teuthidæ 11. (pars) *Owen, Trans. Zool. Soc.* ii. 1836.

A. *Head separate from the Body. Mantle free all round. Shell pennate.*

a. *Shell as long as Back. Fin posterior, dorsal, rhombic.*

1. GONATUS. Cups of sessile arms in four rows. Tentacular arms with many rows of small cups, and a single hooked cup at the base. Shell pennate, edges thin.
2. LOLIGO. Cups of sessile arms in two rows; lateral membranes with cups on angles. Shell pennate, edge thin.
3. TEUTHIS. Cups of sessile arms in two rows; lateral membranes without cups. Shell pennate, edges thin.

b. *Shell as long as Back. Fin occupying the Sides of the Body.*

4. SEPIOTEUTHIS. Shell pennate, broad; edge sometimes thickened.

- c. *Shell elongate, broad. Animal ——— ? Fossil.*
5. TEUDOPSIS. *Shell pennate, very broad below, narrow above.*
6. LEPTOTEUTHIS. *Shell lanceolate, very broad above, acuminate below.*
7. BELOTEUTHIS. *Shell oblong, dilated and winged behind, acuminate above.*
8. BELEMNOSPIA. *Shell broad, central part dilated and produced in front, winged behind.*
- d. *Shell shorter than the Back. Fin short, on the middle of the Sides of the Back.*
9. ROSSIA.
- B. *Head attached to the Back of the Mantle by a broad cervical Band. Fin short, in the middle of the Sides of the Back. Shell narrow, with a central and two marginal Ribs.*
10. SEPIOLA. *Cups of sessile arms nearly sessile.*
11. FIDENAS. *Cups of sessile arms very longly peduncled.*
- A. *Head separate from the Body. Mantle free all round. Shell pennate.*
- a. *Fin posterior, dorsal, rhombic. Shell as long as Back.*

1. GONATUS.

Body cylindrical, acute behind. *Fins* posterior, rhombic, connate behind, separate in front, elongated, linear. *Ventral part of mantle* with two interior marginal ridges, fitting into grooves on the base of the siphuncle, and a dorsal ridge and groove.—*Head* cylindrical; buccal membrane rounded, not lobed, without any cups. *Eyes* large, covered with the skin, with a small transparent spot; no eyelid.—*Sessile arms* curved, rounded externally; cups small, conical, contracted at the top, nearly uniform in size, in four series, all with small circular rings. *Tentacular arms* cylindrical, flattened internally and granular on the edges; club small, compressed, and finned at the tip, external; with ranges of small, nearly sessile, equal-sized cups (more numerous near the base), and with a large sessile cup armed with a hook in the middle of the lower part.—*Siphuncle* short, conical, without superior central band, and no interior valve.—*Shell* horny, thin, lanceolate, pennate, narrowed and extended in front, which is slightly margined on the sides.

Onycotheutis sp. *Moller, Moll. Græn, 3. 1842.*

Moller describes the tentacular arms with cups to the base; this is not the case, but each side of the flattened inner surface is

covered with minute scales, perhaps indicating cups, especially near the club; and the outer series of the cups on the shorter arms are like the other, with circular rings and no hooks.

1. GONATUS AMÆNA.

Body cylindrical, tapering and acute behind. Fins rhombic, not one third the length of the back.

Onycoteuthis ? *amæna* Møller, *Ind. Moll. Græn.* 1.

Hab. Greenland.

a, b, c. Greenland. In spirits. From Dr. Møller's Collection.

2. LOLIGO.

Body smooth, elongate, subcylindrical, pointed behind, truncated in front. Fin on the hinder part of the sides of the back, united behind, and forming together a rhomb. Mantle with two ridges on the ventral side, fitting into two grooves on the base of the siphuncle, and with a dorsal groove fitting in a longitudinal ridge on the nape.—*Head* subcylindrical, narrowed behind the eyes; buccal membrane produced into angles; angles furnished with two series of small ringed cups. Eyes large, with a small lacrymal before the globe of the eye. Aquiferous openings, one on each side, between the third and fourth sessile arms, and six on the lips.—*Sessile arms* subulate, triangular, or compressed; third pair large, and keeled externally; cups oblique, in two alternate series, on a small foot; rings generally toothed on the widest side; the third and fourth arms shortly webbed, rest free. Tentacular arms only partly retractile, cylindrical, attached by a band to the lower arms. Club lanceolate, finned externally, with four or more rows of cups.—*Siphuncle* moderate, not sunk into a hollow, fixed by two central superior bands, and with an internal valve.—*Shell* horny, internal, occupying the whole length of the body, lanceolate, like a pen, narrow above, and with a central, longitudinal, keeled ridge, forming gutter within.—*Eggs* in subcylindrical masses crowded together on sea weeds.
Rang, Mag. Zool. 1837, t. 47.

Τευθος and Τευθις *Aristoteles*.

Sepia sp. *Linn. Syst. Nat.*

Loligo *Plinius, Belon, Rondeletius; Lamarck, Mém. Soc. H. N.* 1799.

Syst. An. s. Vert. 60. 1801; *Leach, Jour. Phys.* 1817; *D'Orb.*

Moll. Viv. et Fos. i. 333.

Calmars plumes ou Pteroteuthis, sect. E. *Blainville, Malac.* 1825.

Teudopsis sp. *Munster*.

* *Shell very broad, pennate. Side very convex; upper Part slender.*

1. LOLIGO BREVIS.

Body cylindrical, obtuse posteriorly. Pinnæ short, transversely oval. Shell dilated, oblong, pennate, central-keeled, narrow in front.

Loligo brevis Blainv. *Journ. de Phys.* 1823, *Dict. des Sc. Nat.* xxvii. 145.; *Féruss. D'Orb. Tab. des Céph.* 64. n. 10., *Céph. Acét.* t. 15—24. f. 14—19. rings; *D'Orb. Voy. Am. Mérid. Moll.* 62., *Paléont. univ.* t. 11. f. 1., *Paléont. étrang.* t. 9. f. 1., *Moll. Viv. et Fos.* i. 345. t. 19. f. 1. shell.

Loligo brevipinna LeSueur, *Journ. Acad. Nat. Hist. Philad.* iii. 282. 1824; *Féruss. D'Orb. Tab. des Céph.* 64. n. 10., *Céphal. Acét.* t. 13. f. 4—6. from LeSueur, *Bullet. Univ. Sc. Nat.* iii. 92.

Hab. Brazil. Rio Janeiro.

2. LOLIGO HARDWICKEI.

Body oblong, rounded behind. Fins nearly two thirds the length of the body, rounded on the sides. Second pair of sessile arms rather the largest. Tentacular arms with numerous small cups, with smaller ones in four rows at the tip. Shell lanceolate, pennate, very broad, with a narrow central ridge; the anterior extremity narrow, about one fourth the entire length.

Loligo Hardwickei Gray, *Brit. Mus.* 1836.

Hab. Indian Ocean.

a. India. In spirits. Presented by General Hardwicke.

b. Shell of a. dry.

c. India. In spirits. Small. Presented by General Hardwicke.

Like *L. brevis*, but fins longer; differs from *L. Duvaucelli*, in the fins being longer, and the shell broader, with a narrow stem.

** *Shell pennate, lanceolate. Sides convex; upper Part moderate.*

3. LOLIGO MAGNA.

Body oblong, subcylindrical, acuminate behind. Fins semirhomboidal, nearly two thirds the length of the sides. Sessile arms conico-subulate, with numerous rather large cups, and smaller ones at the end; cups oblique; rings with an eccentric opening, with eleven or thirteen elongate blunt teeth on the broad side, the rest smooth. Tentacular arms very long. Shell lanceolate, pennate, translucent; of the males elongate, acute; of the females broader and rather blunt.

- Loligo magna* *Rondeletius*, *Desc. Pisc. Marin.* lib. xvii. 506. cap. iv. 1554, *Hist. Nat. de Poiss.* 368. 1558; *Gesner, de Aquatilib.* lib. iv. 580.
- Loligo major* *Aldrovand.* *de Mollibus*, p. 67. 69, 70, 71. 1642; *Johnston, Hist. Nat.* lib. i. cap. iii. p. 10. t. 1. f. 4.; *Ruysch, Theat. univ. omn. Anim.* lib. iv. cap. iii. p. 8. t. 1. f. 4.
- Sepia loligo* *Linn. Mus. Adolph. Fred.* 94. 1754, *Syst. Nat.* ed. 12. 1095. n. 4. 1767, *Gmel. Syst. Nat.* edit. 13. 3150. n. 4.; *Scopoli, Hist. Nat.* 127.; *Pennant, Brit. Zool.* iv. 53. t. 27. n. 43.; *Müller, Zool. Dan. Prod.* 2815.; *Gronov. Zooph.* 244. n. 1027., *Act. Helvet.* v. 379. n. 489.; *Herbst. Einleit. zur Ken.* 79. n. 2. t. 390.: *Bosc, Hist. Nat. des Vers*, 46.
- Loligo biscale* *Borlase, Nat. Hist. Cornwall*, 266. t. 25. f. 32. 1758.
- Calmar commun* *Montfort, Buff. de Sonnin. Moll.* ii. 7. 1805.
- Loligo vulgaris* *Lamck. Mém. de la Soc. d'Hist. Nat. de Paris*, 1799, p. 11., *Syst. An. s. Vert.* 60. 1801, *Hist. An. s. Vert.* vii. 667.; *Férussac, Dict. Class.* iii. 67.; *Blainv. Dict. des Sc. Nat.* xxvii. 143., *Journ. de Phys.*; *Carus, Icon. Sep. Nov. Act. Phys. Med. Acad. Cæs. Nat. Cur.* xii. 319. t. 31.; *Féruss. D'Orb. Tab. des Céph.* 63. n. 8.; *Payraud. Cat. des Moll. de Corse*, 173. n. 352.; *Risso, Hist. Nat. Eur. Merid.* iv. 6. n. 7.; *Blainv. Faun. Franç.* t. 3. f. . p. 15.; *Philippi, Enum. Moll. Sic.* 241. n. 1.; *Bouchard, Cat. des Moll. de Boul.* 71. n. 123.; *D'Orb. Moll. des Canaries*, 23. n. 7., *Paléont. univ.* t. 10. f. 1—12. t. 11. f. 2—4., *Paléont. étrang.* t. 8. f. 1—12. t. 9. f. 2—4., *Moll. Viv. et Fos.* i. 336. t. 19. f. 2—4.; *D'Orb. et Féruss. Céph. Acét. Calmars*, t. 8. long arms, not good, 9, 10. 22. f. 1. 3. t. 23. f. 1—12.; *Potiez et Mich. Gall. des Moll. de Douai*, i. 8. n. 1.; *Cantraine, Malac. Nouv. Mém. Acad. de Brux.* xiii. 17. n. 3.; *Thompson's Report of the Brit. Assoc.* 1844, p. 248.
- Loligo sagittata* *Bowdich, Elem. of Conchol.* t. 1. f. 2. 1822.
- Loligo pulchra* *Blainv. Dict. des Sc. Nat.* xxvii. 144. 1823; *Férussac, D'Orb. Tab. des Céph.* 63.; *Blainv. Faun. Franç.* 17. a young female, *D'Orb.*
- Loligo Rangii* *Féruss. Céph. Acét. Calm.* t. 19. f. 4—6. 1833, on a bad drawing, *D'Orb.*
- Loligo Berthelotii* *Verany, Mém. Acad. Torin.* i. t. 6. (jun.) 1837.
- Hab.* Atlantic and Mediterranean.
- a. Isle of Man. In spirits. Rev. J. Henslow. Mus. Leach.
 - b. —————? —————? Mus. Sloane.
 - c. —————? Half-grown. In spirits.
 - d. Brighton. Half-grown. In spirits. J. G. Children, Esq.
 - e. —————? Eggs in spirits. Rev. G. E. Smith, Esq.
 - f. Base of head and jaws in spirits. Hastings.
 - g. Base of head and eyes in spirits. Torbay. Mus. Leach.

4. LOLIGO PEALII.

Body elongate, subconical, acuminated posteriorly. Fins rhomboidal, thick, occupying about three fifths of the length, together forming a rhomb much rounded on the sides, the front side rather shorter than the hinder. Sessile arms long; cups very oblique; rings on one side very high, with six or seven teeth, cut square at the end, other side flat, edged within. Tentacular arms long; cups unequal, very large, one rather oblique; their rings narrow, with alternate long and short very close acute teeth. Siphuncle long. Shell lanceolate, regular, narrow.

Loligo Pealii *Journ. Acad. Nat. Hist. Philad.* ii. 92. t. 8. f. 1, 2. 1821; *Blainv. Journ. de Phys.* 132., *Dict. d'Hist. Nat.* xxvii. 144.; *Féruss. Dict. Class.* iii. 67. n. 13.; *D'Orb. Tab. des Céph.* 63. n. 12.; *D'Orb. et Féruss. Céph. Acét. Calmars*, t. 11. t. 20. animal, f. 17—27. rings; *D'Orb. Moll. Viv. et Fos.* i. 341.

Hab. America, South Carolina and New York.

a. Boston, North America. In spirits. Presented by W. Winstone, Esq.

5. LOLIGO EMMAKINA.

Body oblong, rounded behind. Fins half as long as the body, subrhombic, slightly rounded at the sides. Lips with one or two very small cups at the tip. The second and third pairs of sessile arms larger, and with much larger cups. Tentacular arms with numerous small cups, and smaller ones at the top. Shell lanceolate, thin, with a black central ridge; the anterior part broad, one fourth the length.

Hab. Para.

a. Para. In spirits. Presented by R. Graham, Esq.

b. Shell of *a.*

6. LOLIGO AUSTRALIS.

Body oblong, subcylindrical. Labial membrane with small cups at the tips. Fins rhombic, half the length of the body. Tentacular arms with many moderate-sized cups disposed in four rows, and with numerous smaller cups forming four rows at the tip. Shell broad, lanceolate, blackish brown; upper end rather broad.

a. Australia, Newcastle. In spirits. Presented by Rev. C. N. Wilton.

b. Shell of *a.* broken.

7. *LOLIGO BRASILIENSIS*.

Body elongate, subcylindrical, acuminate behind. Fins short, half the length of the body, together rhomboidal with rounded angles, broader than long. Sessile arms triangular; ring oval, opening eccentric, higher side with six or eight broad teeth, cut square. Tentacular arms very long: cup unequal: ring of larger cups nearly regular, with acute equal-sized equal-distanced teeth; of smaller oblique, with very long distant teeth on the higher, and short close ones on the narrow side. Shell narrow, lanceolate, depressed, broad above, with an additional groove on each side in front.

Loligo brasiliensis Blainv. *Journ. de Phys.* 1823, *Dict. des Sc. Nat.* xxvii. 144.; *Féruss. D'Orb. Tab. des Céph.* 64., *Céph. Acét.* t. 12.; *D'Orb. Voy. dans l'Amér. Mérid. Moll.* 63., *Moll. des Antilles*, i. 38. n. 10., *Moll. Viv. et Fos.* i. 344.

Loligo Poeyianus *Féruss. Céphal. Acét. Calmars*, t. 19. f. 1, 2, 3. 1833.

Hab. Brazil, Island of Cuba.

8. *LOLIGO GAHI*.

Body elongate, subcylindrical, white, spotted with red. Fins terminal, short, one third the length of the body, rhomboidal, outer angle rounded, broader than long. Sessile arms very long; ring of cups very oblique, armed on the higher side with six broad blunt teeth. Tentacular arms with unequal cups: rings of larger cups oblique, armed with equal close blunt teeth; of the smaller ones oblique, with acute teeth, longest on the higher side. Shell elongate, dilated behind, produced, narrow in front.

Loligo Gahi *D'Orb. & Féruss. Céph. Acét. Calmars*, t. 21. f. 3, 4.; *D'Orb. Voy. Am. Mérid.* v., *Moll.* 60. t. 3. f. 1, 2. 1835, *Paléont. univ.* t. 10. f. 12, 13., *Paléont. étrang.* t. 8. f. 12, 13., *Moll. Viv. et Fos.* i. 348. t. 18. f. 13, 14. ring of cups.

Hab. South America, Chili.

9. *LOLIGO NEGLECTA*.

Body oblong, subcylindrical. Fin two thirds the length of the body, rhombic, rounded on the sides. Tentacular arms with eight or nine very large cups in two rows, and small ones at the ends. Shell lanceolate.

Loligo vulgaris *D'Orb. Moll. Viv. et Fos.* i. t. 18. f. 1. 12.

Hab. Atlantic.

a. Malta. In spirits.

b. Lisbon. In spirits. Presented by G. Hough, Esq.

c. South of Europe. In spirits, in a bad state. Presented by P. B. Webb.

d. Dalmatia. In spirits. Mr. Heckel's Collection.

10. LOLIGO REYNAUDII.

Body elongate, larger in the middle, acuminate behind. Fins occupying more than two thirds the length of the body, elongate, rhomboidal. Sessile arms well rounded at the angles, short, unequal; second, third, and fourth pairs externally carinated; ring of cups with acute teeth on the higher side, diminishing in size to the other side. Tentacular arms large, cylindrical: cups very unequal, ten or twelve central very large; their rings smooth, of smaller lateral cups oblique, with acute teeth, longest on the higher side. Shell narrow, lanceolate; central groove rather produced above.

Loligo Reynaudii Féruss. & D'Orb. *Céph. Acét. Calmars*, t. 24. f. 1—8. 1839, *Paléont. univ.* t. 11. f. 3., *Paléont. étrang.* t. 9. f. 3., *Moll. Viv. et Fos.* i. 346. t. 19. f. 1—5.

Hab. Cape of Good Hope.

a. Cape of Good Hope. In spirits. Presented by G. Bordaile, Esq.

b. The shell of a. in spirits.

11. LOLIGO TRICARINATA.

Animal ———. Shell lanceolate, transparent, whitish, central groove deep; the blade with a slight raised ridge from the apex to the front part of the outer edge, near the commencement of the shoulder, producing three distinct keels on the convex side of the tip; the upper part of stem one fifth of the length. Length sixteen inches.

Hab. Isle of France.

a, b. Shells. Isle of France. Presented by Lady Francis Cole.

Differs from all the other shells of the genus by its large size, and the oblique groove from the tip to the upper margin. The shell of *L. Reynaudi* is only twelve inches long.

*** *Shell lanceolate, sides straight, converging; upper part broad.*

12. LOLIGO DUVAUCELII.

Body oblong, elongate. Fins irregular, rhombic, half as long as the body. Buccal membrane seven-lobed. Sessile arms, third pair largest, compressed, finned externally; cups of the lowest or

fourth pair of arms unequal, rings with eight or nine blunt truncated teeth. Tentacular arms much enlarged at the end, with rather unequal cups; the rings of the largest very narrow, with distant acute teeth, largest on the highest side; lateral cups oblique; rings with very unequal teeth, shortest on the lowest side. Shell pennate, enlarged, provided with three grooves above, oblong, lanceolate, dilated anteriorly and posteriorly.

Loligo Duvaucelii *D'Orb. & Féruss. Céph. Acét. Calmars*, t. 14. t. 20. f. 6—16. 1826 and 1839; *D'Orb. Moll. Viv. et Fos.* i. 350.

Hab. India.

May be the young of *L. chinensis*, but the rings of the cups are very different from Férussac's figures.

13. LOLIGO CHINENSIS.

Body oblong, subcylindrical, acuminate behind. Fins rhombic. Labial membrane with a few small cups. Sessile arms, third pair largest, compressed, finned; rings of the cups of the ventral or lower pair of arms with many close acute teeth. Tentacular arms with numerous rather large cups, and some very small ones at the tip; rings of cups with distant teeth. Shell translucent, lanceolate, rather dilated behind the central part, broad, tapering; upper part (called the *stem*) short broad.

Hab. China.

- a, b.* Canton market. Salted, now in spirits. Presented by T. Lay, Esq.
- c, d.* The shell of *a, b.*

14. LOLIGO PLEI.

Body very elongate, cylindrical, acuminate posteriorly. Fins rhomboidal, about two fifths the length of the body, outer angle rounded. Sessile arms conico-subulate, very short, unequal; order of length, 3, 4, 2, 1; cups oblique; rings even, toothless. Tentacular arms, club small; cups unequal; rings of the largest smooth, toothless, of the smaller ones with acute points; of the small cups on the sides very oblique, with long teeth on the higher side. Shell elongate, very narrow, lanceolate, with three longitudinal grooves.

Loligo Plei *Blainv. Journ. de Phys.* 142., *Dict. Sc. Nat.* xxvii. 145. 1823; *Féruss. D'Orb. Tab. des Céph.* 64. n. 14.; *D'Orb. Moll. des Antilles*, i. 42. n. 11., *Paléont. univ.* t. 11. f. 6., *Paléont. étrang.* t. 9. f. 6., *Moll. Viv. et Fos.* i. 343. t. 19. f. 6.; *D'Orb. et Féruss. Céph. Acét. Calmars*, t. 16. t. 24. f. 9—13.

Hab. West Indies, Martinique, and Cuba.

15. LOLIGO ALESSANDRINI.

Body oblong, subcylindrical, rounded behind. Fins about two fifths the length of the body, posterior, rounded. Cups of tentacular arms, unequal, large.

Loligo Alessandrini Verany, Ceph. ex Sicilia, t. 2. f. 2.

Hab. Sicily.

4* *Doubtful recent Species.*

16. LOLIGO MINIMA.

Body smooth, oblong, conical. Fins very small, at the end of body, semicircular, far apart. Sessile arms short, rather unequal; cups in two lines. Tentacular arms long, cylindrical, scarcely enlarged at the end, with two rows of small, alternate, peduncled cups. *Férussac.*

Loligo minima D'Orb. Moll. Viv. et Fos. i. 351.

Cranchia minima Féruss. Cranchies, t. 1. f. 4, 5. 1830.

Hab. Coast of Africa.

17. LOLIGO CARUNCULATA.

Body oblong, roundish. Fins rhombic. Tentacular arms with cylindrical or triangular caruncles on the inner side, and a few cups.

Sepia carunculata Schneider, Beobacht. und Entdeck. aus der Nat. v. 42.; *Isert, Reise nach Guinea*, 7. 1788.

Loligo carunculata Féruss. MS.; D'Orb. Moll. Viv. et Fos. i. 352.

Hab. Gulf of Guinea.

18. LOLIGO LANCEOLATA.

Loligo lanceolata Rafin. Précis des Découv. Somiol. 29. 14.; *D'Orb. Moll. Viv. et Fos.* i. 352.

Hab. Mediterranean. Not described.

19. LOLIGO OSOGADIUM.

Loligo osogadium Rafin. Précis des Découv. Somiol. 29. 1814.; *D'Orb. Moll. Viv. et Fos.* i. 352.

Hab. Mediterranean. Not described.

5* *Fossil Species. Upper Lias.*

20. LOLIGO PYRIFORMIS.

Shell oblong, smooth, attenuated in front, dilated behind.

Teudopsis pyriformis *Munster, Beitr. Petref.* vi. 58. t. 6. f. 3. 1843.

Loligo pyriformis *D'Orb. Paléont. univ.* t. 12.; *Moll. Viv. et Fos.* i. 336.

Fos. Upper Lias, Ohmden, Wurtemberg.

21. LOLIGO PYRIFORMIS.

Shell ovate, oblong, smooth, dilated behind, attenuated in front.

Loligo pyriformis *D'Orb. Paléont. univer.* t. 12. 1845, *Paléont. étrang.* t. 10., *Moll. Viv. et Fos.* i. 336.

Teudopsis pyriformis *Munster, Beitr. Petref.* vi. 58. t. 6. f. 3. 1843.

Fos. Upper Lias.

3. TEUTHIS.

Body elongate, acute behind, becoming produced and elongated in adult age, especially in the males. Fin rather behind the middle of the sides of the back, forming a heart-shaped expansion together.—*Head* subcylindrical. Labial membrane simple, not produced into angular lobes, and destitute of any cups. Shell lanceolate, narrow; rest like *Loligo*.

Teuthis Aristoteles, de Anim. iv. 1.; *Schneider, Samml. Verm.* 112. 1784.

Loligo sp. *Belon, de Aquat.* 339.; *Férussac, Lamck., Leach, &c.*

Sepia sp. *Linn.*

Loligo β. *D'Orb. Moll. Viv. et Fos.* i. 337.

1. TEUTHIS PARVA.

Body subcylindrical, elongate, attenuated behind, and in the adult males produced beyond the fins. Fins separate, far apart in front, rhomboidal, subcordiform. Sessile arms with the oblique rings armed with blunt close teeth on the higher side. Tentacular arms long, clubbed; rings with very close blunt teeth. Shell lanceolate, broad, narrow in front.

Loligo parva *Rondelet. de Piscib.* lib. xvii. cap. v. 508. 1554; *Gesner, de Aquat.* lib. iv. 581.; *Bossuet de Nat. Aquat.* 200.; *Leach, Nat. Miscell.* iii. 138.; *D'Orb. Moll. Viv. et Fos.* i. 339.

Loligo minor, Rondeletii Aldrovand. de Moll. 72. 67. 1642; *Johnston, Hist. Nat. Exang.* lib. i. de Moll. cap. iii. p. 8. t. 1. f. 5.; *Ruyssch, Theatr. Exang.* 8. t. 1. f. 5.

Sepia media *Linn. Syst. Nat.* ed. 12. 1095. n. 3. 1767; *Scopoli, Hist. Nat.* 27.; *Pennant, Brit. Zool.* iv. 54. t. 29. f. 45.; *Gmel.*

Syst. Nat. edit. 13. 3150. n. 3.; *Turton, Brit. Zool.* 119.; *Brug. Encyc. Méth.* t. 76. f. 9.

Calmar dard *Montfort, Buff. de Sonnin, Moll.* ii. 74. t. 16, 17. 1805.

Calmar contourné *Montfort, Buff. de Sonnin. Moll.* 82. t. 18. 1805.

Loligo subulata *Lamarck, Mém. Soc. Hist. Nat. Par.* i. 15. n. 3. 1799, *Hist. An. s. Vert.* vii. 664. n. 3.; *Bosc, Buff. de Deterv. Vers.* i. 46.; *Blainv. Journ. de Phys.* 131., *Dict. des Sc. Nat.* xxvii. 143.; *Férussac, Dict. Class.* iii. 67. n. 5.; *D'Orb. Tab. des Céph.* 63. n. 9.; *Payraudeau, Cat. Moll. de Corse*, 172. n. 350.; *Blainv. Faunc. Franç.* 16.; *Potiez & Mich. Gall. Moll. de Douai*, i. 8. n. 2.; *Cantraine, Malac. Nouv. Mém. Acad. de Brux.* xiii. 17. n. 2.; *D'Orb. Céph. Acét. Calmars*, t. 17. t. 23. f. 19. 13—21.; *Thompson's Report of the Brit. Assoc.* 248.

Loligo spiralis *Féruss. Dict. Class.* n. 6. 1823; *D'Orb. Tab. des Céph.* 63. n. 10.

Loligo marmoræ *Verany, Mem. Acad. Sc. Torin.* i. t. 5. 1837, female.

Loligo Lamarmoræ *Verany, Cat. Invert. Genova*, 17.

Hab. Atlantic and Mediterranean, Coasts of France and England.

a. Brighton. Male; tail very long. In spirits. Presented by J. Rucker, Esq. Mus. Leach.

b. Shell of a. dry. _____.

c. Hastings. Male, larger; tail longer. In spirits. Presented by J. G. Children, Esq.

d. Devon. Female, smaller; tail shorter. In spirits. Presented by W. E. Leach, M. D.

e. Coast of Holland. Female; tail shorter. In spirits. Presented by E. Engle, Esq.

f. Shell of e. dry.

g. Shell of d.

h. Shell. Coast of France. Presented by W. E. Leach, M. D. Young, the end of tail not produced. Fins about two fifths the length of the body.

Loligo vulgaris jun. *Féruss. Céph. Acet.* t. 22. f. 23. ?

i. Weymouth. Young. In spirits. Presented by Rev. Dr. J. Goodall.

j. Plymouth. Young. In spirits. Presented by W. E. Leach, M. D.

2. TEUTHIS SUMATRENSIS.

Body short, cylindrical, attenuated behind. Fins regularly rhomboidal, truncated in front, rounded on the sides, nearly half the length of the body. Sessile arms moderate; rings with six or

eight very blunt teeth on the higher side; lower side smooth; third pair largest. Tentacular arms long, slender; club lanceolate; cups unequal; ring of the lateral cups armed with sharp teeth on the higher side. Shell oblong, spoon-shaped; upper part rather narrow and produced.

Loligo sumatrensis D'Orb. & Féruss. *Céph. Acét. Calmars*, t. 13. f. 1—3. 1839; D'Orb. *Moll. Viv. et Fos.* i. 349.

Hab. Sumatra.

b. *Shell as long as Back. Fin occupying the Sides of the Body.*

4. SEPIOTEUTHIS.

Body oblong, rather depressed, subcylindrical. Fins narrow, extending the whole length of the sides of the back. Suspending buttons on the ventral surface, marginal, cartilaginous, linear, enlarged below; cervical ridge linear.—*Head* large, buccal membrane seven-lobed; buccal aquiferous openings six; external ear with a transverse crest, enlarged and curved up in front.—*Sessile arms* conical, subulate, unequal, finned externally; cups in two rows. Tentacular arms long, cylindrical; club enlarged and finned; cups in four alternated rows, with a thin membrane.—*Siphuncle* with two central superior bands.—*Shell* internal, horny, the length of the back, pennate, lanceolate, narrow in front, and with a central keel.

Sepia sp. *Lamck.* 1812.

Calmars Seiches (*Loligo Sepioidea*) *Blainv. Jour. Phys.* 1823, *Malac.* 1825.

Chondrosepia *Leuckart*, 1828.

Sepioteuthis *Férussac*, *Tab. Céph.* 1825; D'Orbigny, *Moll. Viv. et Fos.* i. 319. t. 17.; *Desh. in Lamck. Hist.* xi. 242.

Les Sepioteuthes *Blainv. Malac.*

Synopsis of Sections.

* Buccal membrane provided with cups.

** Buccal membrane without any cups.

* *Buccal Membrane provided with Cups.*

† *Shell lanceolate, thickened on the Sides, obliquely up to the Shoulder.*

1. SEPIOTEUTHIS LUNULATA.

Body oval, oblong. Fins very broad, fleshy, most dilated behind the middle of the body. *Sessile arms* elongate, slender, unequal; order of length, 3, 2, 4. 1; cups depressed, oblique; rings with

strong, curved, distant teeth, longest on the highest side. Tentacular arms much clubbed, blunt; cups rather oblique, in four lines; rings of the larger central ones narrow, with very distant teeth. Shell lanceolate, thickened edge extending up to the shoulder, upper part short.

Sepioteuthis lunulata Quoy & Gaim. *Voy. Astrol. Zool. Moll.* ii. p. 74. t. 3. f. 8—13. ♀? 1832; *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis*, t. 3. f. 1. t. 6. f. 1—8.; *D'Orb. Moll. Viv. et Fos.* i. 323. t. 17. f. 5—8.

Sepioteuthis guinensis (*Sepioteuthe de Dorei*) Quoy & Gaim. *Voy. Astrol. Zool. Moll.* ii. 72. t. 3. f. 1—7. 1833.

Sepioteuthis dorensis *D'Orb. et Féruss. Céph. Acét. Sepioteuthis*, t. 3. f. 3. ♂? 1833.

Hab. New Guinea, Vanikoro.

2. SEPIOTEUTHIS AUSTRALIS.

Body oblong-elongate, cylindrical, truncated in front, acuminate and blunt behind. Fins very broad, very fleshy, subrhomboidal, broadest in the middle of the body. Sessile arms elongate, unequal; order of length, 3, 4, 2, 1. Tentacular arms very strong, compressed; club large; cups very large; rings of larger cups with very blunt distant teeth. Shell thin, flexible, lanceolate, widest at one third its length; central rib prominent, expansion commencing near its upper end.

Sepioteuthis australis Quoy & Gaim. *Voy. Astrol. Zool.* ii. 77. t. 4. f. 1. 1833, *Règne Animal du Cuv.* t. 3.; *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis*. t. 5. f. 5. t. 6. f. 15—21.; *D'Orb. Moll. Viv. et Fos.* i. 324. t. 17. f. 15.

Hab. New Holland.

Var. 1. Cups on labial membrane, three in one line.

a. Port-Jackson, Australia. Half-grown. In spirits. Presented by J. B. Jukes, Esq. n. 81.

b. The shell of a.

Var. 2. Cups on labial membrane, five in two lines.

c. Darnley Island, Australasia. Adult. In spirits. Presented by J. B. Jukes, Esq. n. 241.

3. SEPIOTEUTHIS MAURITIANA.

Body spotted with violet, cylindrical, acuminate behind. Fins narrow, widest at two thirds the length of the body. Sessile arms unequal; order of length 3, 4, 2, 1; cups oblique; rings with a number of acute, hooked, curved teeth. Tentacular arms slender; cups rather oblique; rings of the middle cups with acute, distant, hooked teeth, largest on the highest side.

Labial membrane with four or five cups at the angles (see *Férussac*, l. c. t. 5. f. 4. t. 7. f. 8.). Shell lanceolate, narrow, widest at one third the length, central ridge very strong. Sides thickened, and diverging to the upper extremity of the expansion.

Sepioteuthis mauritiana Quoy & Gaim. *Voy. Ast. Moll.* ii. 76. t. 4. f. 2—6. 1833; *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis*, t. 5. f. 1—4. t. 7. f. 1—5.; *D'Orb. Moll. Viv. et Fos.* i. 328.

Hab. Mauritius.

4. SEPIOTEUTHIS MADAGASCARIENSIS.

Body oblong, rounded behind. Fins broad, rounded. Cups of tentacular arms unequal, four-rowed. Labial membrane with a single cup at the tip of each angle. Shell lanceolate, rather broad, thickened on the side, upper part rather broad, blackish.

Sepioteuthis madagascariensis Gray *MS. B. M.* 1836.

Hab. Madagascar.

a. Madagascar. In spirits. Presented by J. E. Gray, Esq.

b. Shell of *a.* In spirits.

†† *Shell lanceolate, not thickened on the Sides.*

5. SEPIOTEUTHIS LESSONIANA.

Body elongate, spotted with violet. Fins dilated posteriorly. Head broad; ear crests thick, broad. Sessile arms elongate, unequal; order of length, 3, 4, 2, 1; cups oblique; rings with distant acute teeth. Tentacular arms bluntly clubbed; cups large, very oblique; rings armed with acute, distant, curved teeth. Shell lanceolate, broadest in the middle; outer edge not thickened; central rib broad, extended in front, one fifth the length.

Sepioteuthis Lessoniana *Féruss. D'Orb. Tab. des Céph.* 65. 1825; *Lesson, Voy. de Coquille, Moll.* 241. t. 11.; *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis*, t. 1. t. 6. f. 2—14.; *D'Orb. Moll. Viv. et Fos.* i. 326.

Hab. New Guinea.

a. Bay of Islands, New Zealand. Adult. (Rings of the cups black, nearly edentulous.) Antarctic Expedition.

b. Shell of *a.* broken. In spirits.

c, d. Bay of Islands, New Zealand. Young. (Rings of the cups brown, with numerous acute teeth.) Antarctic Expedition.

e. Shell of c. In spirits.

f. ? Shell dry. (Probably of this species.)

D'Orbigny, in his description, says the shell is without any lateral ridges or thickening, but his specific character is (*lateribus incrassatis*). Both our specimens have three or four small cups, forming a single line on the angles of the buccal membrane; and they show that the rings, on which M. D'Orbigny appears to place much reliance, change their character with the age of the specimens.

** *Buccal Membrane without any Cups.*

† *Shell very thin, not thickened on the Edges.*

6. SEPIOTEUTHIS SEPIOÏDEA.

Body ovate, oblong, spotted with violet, acuminate behind. Fins commencing some distance behind, outline subrhomboidal. Sessile arms subulate, slender, unequal; order of length 3, 1, 4, 2; dorsal pair compressed, other depressed; rings broad, with long acute teeth, smaller on their lower side. Tentacular arms slightly clubbed; cups in four lines, of the two central lines largest. Shell, very thin, transparent, very broad, lanceolate, edge not thickened; central ridge broad above, very narrow below.

Sepia officinalis var. b. Lamck, *Mém. de la Soc. d'Hist. Nat.* 1799, p. 7., *Hist. An. s. Vert.* xii. 668.

Seiche truitée Montfort, *Buff. de Sommin. Moll.* i. 265. t. 6. 1805.

Loligo sepioïdea Blainv. *Journ. de Phys.* 1823, p. 133., *Dict. Sc. Nat.* xxvii. 146.

Sepia affinis Féruss. *D'Orb. Tab. Méth. des Céphal.* 66. n. 3. 1825.

Sepia biserialis Blainv. *Dict. Sc. Nat.* xlviii. 284. 1827.

Sepioteuthis biangulata Rang, *Mag. de Zool.* 73. t. 98. 1837.

Sepioteuthis sepioïdea D'Orb. *Moll. des Antilles*, i. 34. n. 9. 1838, *Moll. Viv. et Fos.* i. 320.; *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis*, t. 7. f. 6—11. rings.

Hab. West Indies.

a. Honduras. In spirits.

b. Jamaica ?. In spirits. Mus. Sloane.

c. The shell of b., dry. Slightly thickened on the edge.

†† *Shell with the Margin thickened.*

7. SEPIOTEUTHIS SLOANII.

Sessile arms with only two rows of rings at the base. Fins widest in the middle of the body. Shell broad, lanceolate, with a very

broad thickened side ; margin thicker on the inner side ; central keel very broad, rounded above, thicker in the centre, without any grooves on the sides ; gradually narrower in front.

Loligo Sloanii *Leach, MS. Brit. Mus.* 1817.

Hab. West Indies.

a. Honduras. In spirits.

b. The shell of *a.*

c. ———— ? In spirits. *Mus. Sloane.*

d. Shell of *c.*, dry. Taken out by Dr. Leach.

8. SEPIOTEUTHIS BLAINVILLIANA.

Body cylindrical, rather attenuated, but rounded behind. Fins fleshy, outline broader in the middle of the body. Sessile arms slender, long ; rings oblique, thick, with long, close, acute teeth. Tentacular arms, cup moderately large ; rings like those of the sessile arms. Under side of the buccal membrane tuberculously thickened. Shell lanceolate, very broad, thin, lateral expansion broadest in the middle of the length, strongly thickened on the sides of the extremity.

Sepioteuthis Blainvilliana *Féruss. & D'Orb. Sepioteuthis*, t. 2. 1839 ; *D'Orb. Moll. Viv. et Fos.* i. 327. t. 17. f. 1—4.

Hab. Java.

*** *Buccal Membrane unknown or undescribed.*

† *Fins most dilated on the Middle of the Body.*

9. SEPIOTEUTHIS HEMPRICHII.

Body compressed, attenuated posteriorly, rounded. Fins subequal, elliptical, enveloping the whole sides. Shell very soft.

Sepioteuthis Hemprichii *Ehrenberg, Symbolæ Physicæ, Céph.* n. 1. 1831 ; *D'Orb. Moll. Viv. et Fos.* i. 322.

Hab. Red Sea.

10. SEPIOTEUTHIS BILINEATA.

Body elongate, rhomboidal, surrounded with a blue mark. Fins dilated in the middle.

Sepia bilineata *Quoy & Gaim. Voy. Astrol. Zool.* ii. 66. t. 2. f. 1. 1833.

Sepioteuthis bilineata *D'Orb. & Féruss. Céphal, Acét. Sepioteuthis*, t. 4. f. 2. 1839 ; *D'Orb. Moll. Viv. et Fos.* i. 325.

Hab. New Holland.

11. SEPIOTEUTHIS MAJOR.

Body subcylindrical, attenuated posteriorly; lateral pinnæ produced to the whole length of the body, extended in the middle.

Sepioteuthis major Gray, *Spic. Zool.* 3. t. 4. f. 1. (Mus. Col. Surg.); *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis*, t. 7. f. 12. 1828; *D'Orb. Moll. Viv. et Fos.* i. 330.

Hab. Cape of Good Hope. Mus. Col. Surgeons. The giant of the genus.

†† *Fins most dilated behind the Middle of the Body.*—*Chondrosepia*.

12. SEPIOTEUTHIS LOLIGINIFORMIS.

Shining fuscous colour above, flesh-coloured beneath, with small reddish points scattered all over; aliform membrane broader towards the posterior part, of a violet colour underneath.

Sepioteuthis loliginiformis *D'Orb. & Féruss. Céph. Acét. Sepioteuthis*, t. 4. f. 1. 1839; *D'Orb. Moll. Viv. et Fos.* i. 322.

Chondrosepia loliginiformis *Leuckart; Rüppell, Atlas zu der Reise*, t. 21. t. 6. f. 1. 1828.

Hab. Red Sea.

13. SEPIOTEUTHIS ————?

Sepioteuthis sinensis *D'Orb. Moll. Viv. et Fos.* i. 329. 1845, from *Encyclop. Japonaise*, art. *Jeou-iu* (Poisson mou).

c. *Shell elongate, pennate, broad. Animal unknown. Fossil.*

5. TEUDOPSIS.

Animal unknown.—*Shell* internal, horny, spathula-formed, very narrow, much prolonged in front and dilated behind, with a narrow medial rib; the lateral expansion broad, convex above, concave below, representing a kind of spoon at the hinder extremity.—*Fossil.* Upper Lias.

Teudopsis (les *Teudopsides*) *Deslongchamps, Mém. Soc. Linn. Norm.* 1835, v. 74. t. 3. f. 1, 2, 3.; *D'Orb. Moll. Viv. et Fos.* i. 359., *Paléont. Franç.*; *Desh. in Lamck. Hist.* xi. 241.

Beloteuthis sp. *Munster, Petref.* vi. t. 6. f. 1.; *Bronn, Gesch. der Naturg.* iii. 541.

Teuthopsis *Bronn, Gesch. der Nat.* iii. 541. misprint?

1. TEUDOPSIS BUNELLII.

Shell elliptical, smooth, attenuated in front, rather blunt behind, convex above, and concave below.

Teudopsis Bunellii Deslongch. *Mém. Soc. Linn. Norm.* v. 74. t. 3. f. 123. 1835; *D'Orb. Paléont. Franç. Ter. Jur.* i. 38. t. 1., *Paléont. univ.* t. 13., *Moll. Viv. et Fos.* i. 361. t. 20.

Teuthopsis Bunellii Bronn, l. c. 541.

T. Caumontii Deslongch. l. c. v. 76. t. 3. f. 45.

Fos. Upper Lias, Calvados. Deslongch.

2. TEUDOPSIS AMPULLARIS.

Shell elongate, lanceolate, smooth; sides sinuated; before elongate, slender, produced; behind, dilated, blunt.

Teudopsis ampullaris D'Orb. *Pal. univ.* t. 14. f. 1, 2. 1845, *Pal. étrang.* t. 11. f. 1, 2., *Moll. Viv. et Fos.* i. 260.

Beloteuthis ampullaris Munster, *Beitr. Petr.* vi. t. 6. f. 1. ? 1843; Bronn, *Gesch.* 541.

Sepioteuthis gracilis Munster, *Beitr. Petr.* vi. t. 14. f. 5. ?

Fos. Upper Lias.

3. TEUDOPSIS BOLLENSIS.

Shell lanceolate, elongate, oblique, and broad on the sides, very narrow and prolonged in front, enlarged behind; sides deeply sinuated; central rib very distinct.

Teudopsis Bollensis Voltz, *Taschenb.* 629. 1836; *D'Orb. Paléont. univ.* t. 14. f. 3., *Paléont. étrang.* t. 11., *Moll. Viv. et Fos.* i. 361. t.

Loligo Bollensis Schubler, *Zeiten. Wurt.* 49. t. 37. f. 1. 1830, not t. 25. f. 6, 7.

L. Schubleri Queenstedt, *Wurt.* 254. 1843.

Beloteuthis Bollensis Bronn, l. c. 541.

Fos. Upper Lias, Wurtemberg.

6. LEPTOTEUTHIS.

Animal unknown.—*Shell* horny, internal, lanceolate, very broad and rounded in front; the central rib is only slightly convex, and very broad.—*Fossil.* Oxford Clay.

Leptoteuthis Meyer, *Mus. Senskenb.* i. 202. 1824; Bronn, *Taschenb.* 1836, 56.; *D'Orb. Paléont. univ.* t. 15., *Paléont. étrang.* t. 12. *Moll. Viv. et Fos.* i. 363. t. 21.

1. LEPTOTEUTHIS GIGAS.

Shell lanceolate, smooth, blunt in front, pointed behind.

Leptoteuthis gigas Meyer, *Mus. Lenskenb.* i. 202.; *Bronn, Taschenb.* 1836, 56.; *D'Orb. Moll. Viv. et Fos.* i. 363. t. 21.

Fos. Oxford clay, Solenhoffen.

7. BELOTEUTHIS.

Animal unknown.—*Shell* internal, horny, lanceolate, flat, acuminate in front, enlarged and winged behind, with a central convex, and two diverging lateral concave ridges in the concave beneath.—*Fossil.* Upper Lias.

Beloteuthis (pars) *Munster, Beitr. Petref.* vi. t. 5. f. 1. 1843; *D'Orb. Moll. Viv. et Fos.* i. 364. 1845, *Paléont. univ.* t. 16. 1845.

Sepiolites sp. *Munster*, 1843.

Teuthopsis sp. ? *Bronn, Ges. der Nat.* iii. 541.

1. BELOTEUTHIS SUBCOSTATA.

Shell compressed, lanceolate, attenuated in front, substriated above, and rather costated beneath.

Beloteuthis subcostata *Munster, Beitr. Petref.* 61. t. 5. f. 2. t. 6. f. 2.; *D'Orb. Moll. Viv. et Fos.* i. 363., *Paléont. univ.* t. 16., *Paléont. étrang.* t. 13.

B. substriata *Munster*, l. c. 62. t. 5. f. 3. t. 6. f. 5.

B. acuta *Munster*, l. c. 63. t. 6. f. 4.

B. venusta *Munster*, l. c. 64. t. 14. f. 2.

B. ampullaris (pars) *Munster*, l. c. t. 5. f. 1. not t. 6. f. 1.

Sepialites substriatus *Munster*, l. c. 76. t. 6. f. 6. ?

Fos. Upper Lias, Wurtemberg.

8. BELEMNOSEPIA.

Animal unknown.—*Shell* internal, horny, thin, broad; central part gradually increasing in breadth to the more or less produced broad front part, and with a rounded expansion on each side behind; the lines of growth of the central part transverse, and of the lateral wing arched and concentric; the hinder part convex above and concave beneath.—*Fossil.* Upper Lias and Oxford Clay.

Belemnosepia *Agassiz, Lehrb.* 1835, 627. 1836, 36. in *Buckland, Geol.* i. 374. note, 1836, ed. 2. 414. 1839; *Desh.* in *Lamck. Hist.*

- xi. 245.; *D'Orb. Paléont. Franç. Ter. Jur.* 1842, *Moll. Viv. et Fos.* i. 433.; *Mantell, Medals of Creation*, ii. 468. fig.
Belopeltis Voltz, Bull. Soc. Géol. ii. 40. 1840, *Mém. Soc. Strasb.* iii. 1843.
Loligosepia Queenstedt, Flolzeberg Wurtemb. 252. 1843, not Blainv.
Geoteuthis Munster, Beitr. vi. 68. 1843; *D'Orb. Moll. Viv. et Fos.* i. 161.
Paleosepia Théod. 1844.
Onychoteuthis sp. *Munster, Lehrb.* 1830.
Sea Pens, or Loligo sp. *Buckland, Geol.* i. 374.
Celæno? sp. *Owen, Trans. Phil. Soc.* 1844.

1. BELEMNOSEPIA LATA.

Shell dilated, compressed, broad, and truncated in front, with broad entire wings behind.

Geoteuthis lata Munster, Beitr. vi. t. 7. f. 1. 1843.

Belemnopeltes emarginata Voltz, MS.

Belemnosepia lata D'Orb. Paléont. univ. t. 25. f. 1. t. 26. f. 1., *Moll. Viv. et Fos.* i. 436. t. 31. f. 1.

Fos. Upper Lias, Wurtemberg.

2. BELEMNOSEPIA FLEXUOSA.

Shell oblong, lanceolate, produced, truncated, and narrow lanceolate behind; sides with elongate narrow wings.

Geoteuthis flexuosa Munster, Beitr. zur Petref. vi. t. 9. f. 2. 1843.

Belemnosepia flexuosa D'Orb. Paléont. univ. t. 25. f. 2. t. 26. f. 2. 1846, *Moll. Viv. et Fos.* i. 437. t. 31. f. 2.

Fos. Upper Lias, Wurtemberg.

3. BELEMNOSEPIA AGASSIZII.

Shell elongate, conical, dilated before, attenuated behind. Wings on sides elongate, broad.

Teudopsis Agassizii Deslongch. Mém. Soc. Lin. Norm. v. 72. t. 2. f. 15. 1835.

Belemnosepia Agassizii D'Orb. Paléont. univ. t. 25. f. 3. 1846, *Moll. Viv. et Fos.* i. 437. t. 31. f. 3.

Fos. Lias, Calvados.

4. BELEMNOSEPIA ORBIGNYANA.

Shell dilated, compressed, broad in front. Wing of hinder part broad, sinuous.

Geoteuthis Orbignyana *Munster, Beitr. Petref.* vi. t. 7. f. 2. 1843.
Belemnosepia Orbignyana *Orb. Paléont. univ.* t. 26. f. 3. 1846,
Moll. Viv. et Fos. i. 438.

Fos. Upper Lias, Wurtemberg.

5. BELEMNOSEPIA SAGITTATA.

Shell elongate, dilated in front, lanceolate, with short lateral wing behind.

Geoteuthis sagittata *Munster, Beitr. Petref.* vi. t. 7. f. 3. t. 8. f. 4. t. 14. f. 4. 1843.

Belemnosepia sagittata *D'Orb. Paléont. univ.* t. 27. 1846, *Moll. Viv. et Fos.* i. 439.

G. angusta *Munster, MS.*

Fos. Upper Lias, Wurtemberg.

6. BELEMNOSEPIA HASTATA.

Shell narrow, elongate, narrow in front, lanceolate, blunt, with narrow wing behind.

Geoteuthis hastata *Munster, Beitr. Petref.* v. t. 8. f. 3. 1843.

Belemnosepia hastata *D'Orb. Paléont. univ.* t. 28. f. 1. 1846, *Moll. Viv. et Fos.* i. 439.

Fos. Upper Lias, Wurtemberg.

7. BELEMNOSEPIA SPECIOSA.

Shell like *B. Bollensis*, but narrower and more conic.

Geoteuthis speciosa *Munster, Beitr. Petref.* vi. t. 8. f. 2. 1843.

Belemnosepia speciosa *D'Orb. Paléont. univ.* t. 28. f. 2., *Moll. Viv. et Fos.* i. 440.

Fos. Upper Lias, Wurtemberg.

8. BELEMNOSEPIA BOLLENSIS.

Shell dilated, oblong, dilated in front, truncated; side wing rather narrow, sinuous.

Loligo Aalensis *Schubler, Zeiten. Wurtemb.* 34. t. 25. f. 4. 1830.

Loligo Bollensis *Schubler, Zeiten. Wurtemb.* 34. t. 25. f. 5. 7. 1830.

Fossil Sea Pens *Buckland, Min.* t. 28. f. 6, 7. t. 29. f. 1, 2. t. 30. 1836.

Belopeltis sinuatus *Voltz, Bull. Soc. Géol.* ii. 40. 1840, *Mém. Soc. Strasb.* iii. 1843. from *Zeiten*.

Geoteuthis Bollensis *Munster, Beitr. Petref.* vi. t. 14, f. 3. t. 8. f. 1.

Belemnosepia Bollensis *D'Orb. Paléont. univ.* t. 29. f. 1. 3. 1846, *Moll. Viv. et Fos.* i. 440.

Embalmed Calamary (Celæno, *Munster*) *Owen, Phil. Trans.* 1844, 84. t. 4. f. 2. ??

Fos. Upper Lias, Wurtemberg and Lyme Regis.

9. BELEMNOSEPIA OBCONICA.

Shell conical, oblong, dilated in front, truncated; side wing narrow. *Geoteuthis obconica Munster, Beitr. Petref.* v. t. 9. f. 1. 1843.

Belemnosepia obconica D'Orb. Paléont. univ. t. 29. f. 45. 1846, *Moll. Viv. et Fos.* i. 441.

Fos. Upper Lias, Franconia.

d. *Shell horny, shorter than the Back. Fin short, on the Middle of the Sides of the Back.*

9. ROSSIA.

Body separate at the neck, purse-shaped, rounded behind, truncated before. Cervical band none. Mantle supported in front or below by a small tubercle, fitting into an elongate cartilaginous groove at the base of the siphuncle, above at the nape a central ridge received into a groove. Fins oval, oblong, broad on the middle of the sides of the back.—*Head* large, depressed, narrowed behind the eyes. Eyes large, lateral, superior, with an inferior eyelid. Buccal membrane short, six-lobed. Ears behind, a little below the eyes.—*Sessile arms* strong, thick, conical, subulate, unequal; cups fleshy, globular, sessile, in two or four series; rings horny, convex, toothless; third and fourth pair distinctly webbed. Tentacular arms retractile into a large subocular cavity, long, cylindrical, with clubbed and finned ends; without any protective membrane for the cups, with pediceled spherical cups on two alternating lines; their rings swollen externally and toothed on the upper edge.—*Siphuncle* without any superior band at its junction with the head.—*Shell* horny, lanceolate, only occupying the anterior half of the body.

Rossia *Owen, *J. Ross, Voy. Append.* 1835, *Trans. Zool. Soc.* 1828; *Weigm. Arch.* i. 298. 1836; *D'Orb. Céphal. Acép.* 1839, *Moll. Viv. et Fos.* i. 235. 1845; *Gray, Syn. B. M.* 92. 1842, *Proc. Zool. Soc.* 1847. 205; *Moller, Ind. Moll. Groen.* 3.; *Loven, Ind. Moll. Scand.* 3.

Sepiola sp. *Gervais & Van Beneden, Bull. Acad. Brux.* 1838; *Delle Chiaje, MS.*; *Desh. in Lamck. Hist.* ed. 2. xi. 221. 1845.

* *Cups of sessile Arms similar, equal.*—ROSSIA.

† *Cups of sessile Arms in two alternating Rows beneath, and four or more at the Tip. Fins contracted at their Junction with the Body.*

1. ROSSIA PALPEBROSA.

Body oblong. Head nearly as large as the body, swollen at the eyes. Fins placed anteriorly. Sessile arms short, very unequal; order of length, 3, 4, 2, 1; cups in two rows at the base, and in many rows at the end of the arms, with the rings on the inner side of the sphere. Tentacular arms elongate, with very many cups, which are smaller near the tip.

Rossia palpebrosa Owen, *Ross's Voyage, Nat. Hist.* 93. t. B. f. 1. and t. c. 1834; *D'Orb. Céphal. Acét.* 247. n. 2.; *Rossie*, t. 1. f. 6—10., *Moll. Viv. et Fos.* i. 256.

Sepiola palpebrosa Gervais & Van Beneden, *Bull. de l'Acad. Roy. de Bruxelles*, v. n. 7. 1838.

Hab. Atlantic Ocean, Prince Regent's Inlet, North Sea.

2. ROSSIA MACROSOMA.

Body smooth, short, rounded, broader than long. Fins thin, short, semicircular, larger in front. Head short. Sessile arms subulate, rather compressed, elongated, unequal; order of length, 3, 4, 1, 2; cups spherical, in two distinct rows at the base, and four at the tip; rings large, smooth, and entire. Tentacular arms slender; cup at the base of the club large, gradually diminishing in size, and augmenting in number, towards the end. Shell lanceolate, two thirds the length of the body.

Sepiola macrosoma Delle Chiaje, *MS.*; Gervais et Van Beneden, *Bull. de l'Acad. de Brux.* vi. n. 1. 1838.

Rossia macrosoma D'Orb. & Féruss. *Céphal. Acét.* 245. *Sepiola*, t. 4. f. 13—24. 1839, *Moll. Viv. et Fos.* i. 257. t. 11.

Hab. The Mediterranean, near Naples.

†† *Cups of sessile Arms in two Rows. Fins wide at the Junction with the Body.*

3. ROSSIA SUBULATA.

Body rather elongate, blunt behind. Fins rounded, largest at their junction with the body. Sessile arms unequal; relative length, 4, 3, 2, 1; cups alternate in two rows, shortly pediceled.

Tentacular arms long, slender.—Body, head, and arms pale rose-coloured, red-dotted.

Sepiola subulata Eyd. MS.; Gervais et Van Beneden, *Bull. de l'Acad. Roy. de Bruxelles*, v. n. 7. 1838 (Note sur le genre *Sepiola*.)

Rossia subulata D'Orb. & Fér. *Céphal. Acét.* 249. n. 3. 1839, *Moll. Viv. et Fos.* i. 259.

Hab. Indian Ocean, Manilla.

** *Cups of lateral three Pairs of Arms very large, peduncled, distant; Cups of other arms small, crowded, equal. Tentacular arms tapering.*—*Heteroteuthis*.

4. ROSSIA DISPAR.

Body ovate, rounded, and rather tapering behind. Fins roundish, rather behind the middle of the back. Sessile arms rounded externally; four upper pairs slightly webbed together, third and fourth slightly webbed on the side, ventral pair separate below; cups small, globular; third pair finned, with a very few large globular cups. Tentacular arms slender; club scarcely marked, compressed externally, with very minute cups placed in several series.

Rossia dispar Rüppell, MS. *Brit. Mus.*

Sepiola dispar Rüppell, in *Giorn. del Gabin. di Messina*, xxvi. 1845.

Hab. Sicily.

a, b. Sicily. In spirits. From Edward Rüppell, M. D.

*** *Cups peduncled.*

5. ROSSIA ? OWENII.

Cups large, distinct, on long peduncles, arranged in three rows, those of the centre row not half the size of the side ones; on the first pair of arms more numerous, more equal in size, and smaller, than on the other arms.

Rossia Owenii Ball, *Trans. Roy. Irish Acad.* 1843; *Thompson's Report of Brit. Assoc.* 1843, p. 248.; *D'Orb. Moll. Viv. et Fos.* i. 259. n. 4.

Hab. Ireland, Dublin Bay. Ball, 1839.

6. ROSSIA ? JACOBI.

Larger than *R. Owenii*; arms shorter; cup smaller. Mouth

with a hexagonal membrane, with a ridge running to the second, third, and fourth pairs of arms; on the first pair it passes upon the web between the first pair of arms, where it bifurcates and runs on each side.

Rossia Jacobi *Ball*, *Trans. Roy. Irish Acad.* 1843; *Thompson's Report of Brit. Assoc.* 1843, p. 248.; *D'Orb. Moll. Viv. et Fos.* i. 259. n. 5.

Hab. Ireland, Dublin Bay. Dr. A. Jacob, 1840.

B. *Head attached to the Back of the Mantle by a broad cervical Band. Fin short, in the Middle of the Sides of the Back.*

10. SEPIOLA.

Body short, purse-like, rounded behind, truncated before. Cervical band broad. Mantle with an oblong ridge near the edge fitting into a groove on the sides of the base of the siphuncle. Fins on the middle of the sides of the back far apart, contracted at the base.—*Head* short. Eyes large, prominent; inferior eyelid distinct. Buccal membrane short, six- or seven-lobed. Ear simple, beneath and behind the eye. Aquiferous apertures two; one brachial, between the third and fourth pairs of arms; the second lacrymal, very small, above and behind the eye. Buccal apertures none.—*Sessile arms* conical, subulate, unequal; cups spherical, longly pediceled; rings horny oblique, convex externally; third and fourth pairs slightly webbed at the base. Tentacular arms retracted into a suborbital cavity, elongate, and finned, with very many very small longly pediceled cups in eight series.—*Siphuncle* with an internal valve, and no central upper band at its junction with the head.—*Shell* horny, sublinear, narrow at the top, wider in front, and rather dilated behind, not more than half the length of the back, with a medial groove and thickened edges.

Sepiola Rondelet. Piscis et Aquat. i. 510. 1554; *Aldrovand. de Moll.* cap. 5. 1606.

Sepiola Leach, Zool. Misc. iii. 137. 1817, *Journ. Phys.* lxxxvi. 674. 1817; *Féruss. et D'Orb. Céphal. Acét.* 1839; *D'Orb. Moll. Viv. et Fos.* i. 215. 1845; *Risso, Eur. Merid.* 1826; *Blainv. Malac.* 1825; *Grant, Trans. Zool. Soc.* i. 1838; *Owen, Trans. Zool. Soc.* ii. 1838; *Gervais et Van Beneden, Bull. Acad. Brux.* v. 1838, vi. 38. 1839.

Calmars sect. A. ou Sepioles *Blainville.*

Sepia sp. *Linn. Gmelin, Goldfuss.*

Loligo sp. *Lamarck*, 1799 ; *Férussac*, *Tabl. Syst.* 24.

Sepiolæ (les *Sepioles*) *Risso*, *Eur. Merid.* iv. 7. 1826, not *Lamck*.

Sepiolidæ (pars) *Leach*, *Zool. Misc.* iii. 137. 1817.

Octopodia sp. *Schneid. Samml. Verm. Abh.* 116. 1784.

Sepiolidea *D'Orb. Moll. Viv. et Fos.* i. 249.

* *Body and Head smooth internally. Cartilage of Mantle narrow, linear, oblong.*

† *All the sessile Arms with two alternating Rows of Cups to the Tip.*

1. SEPIOLA RONDELETI.

Body oblong, smooth, rounded behind. Fins oval. Sessile arms short, rather unequal ; proportion of length, 2, 3, 4, 1 ; cups globular, in two close, regular, alternating, series ; rings entire. Tentacular arms short ; club small, compressed, obliquely striated externally ; cup spherical, very small, with eight larger ones irregularly disposed, and with entire rings ; the third pair of arms the least rounded externally ; ventral pair compressed, keeled. Shell with a medial groove and thickened margin.

Sepiola Rondeletius, *de Piscibus*, lib. xvii. cap. x. p. 519. 1554. *Bossuet, de Aquatil.* 204. ; *Johnston, Hist. Nat. de Piscib.* lib. i. cap. iii. t. 1. f. 8. p. 8. ; *Ruysch, Theatr. Evang.* t. 1. f. 1.

Sepiola Rondeleti *Gesner, de Aquatil.* lib. iv. 855. 1558 ; *Aldrovand. de Moll.* lib. v. 63. 1642 ; *Leach, Nat. Miscell.* iii. 138. (1817) ; *Rang, Mag. de Zool.* 70. t. 95. ; *Gervais et Van Beneden, Bull. Acad. Roy. Bruxelles*, v. n. 7. p. 8. ; *D'Orb. et Féruss. Céph. Acét.* 330. n. 2., *Sepioles*, t. 1. f. 1—6. t. 2. f. 3, 4. t. 3. f. 6—9. ; *Potiez et Michaud, Gal. des Moll.* i. 7. n. 1. ; *D'Orb. Moll. Viv. et Fos.* i. 249. n. 2. t. 10. f. 13. ; *Thompson, Rep. Brit. Ass.* 245. 1843.

Sepia Sepiola *Linn. Syst. Nat.* edit. 12. 1096. n. 5. 1767 ; *Scopoli, Aserv. Zool.* p. 128. ; *Herbst, Enseit. zur Kennt. der Gew.* 80. n. 4. ; *Gmel. Syst. Natur.* edit. 13. 3151. ; *Wulfen, Nov. Act. Phys. Med. Acad. Nat. Cur.* viii. 235. ; *Martens, Reise nach Venedig*, ii. 436.

Loligo Sepiola *Lamck. Mém. de la Soc. d'Hist. Nat. de Paris*, 16. 1799, *Anim. s. Vertèb.* vii. 664. n. 4. ; *Penn. Brit. Zool.* iv. 54. t. 29. f. 46. 1777 ; *Barbut, Worms*, 76. t. 8. f. 5. ; *Brug. E. M.* t. 77. f. 3. ; *Blainv. Dict. Sc. Nat.* xxvii. 184. ; *Carus, Icon. Sepiar.* Nov. Act. Acad. Nat. Curios. xii. 318. t. 29. f. 2, 3. ; *Payraudeau, Cat. des Moll. de Corse*, 173. n. 353. ; *Philippi, Enum. Moll. Sic.* 241. n. 3.

- Sepiola vulgaris* Grant, *Trans. Zool. Soc. Lond.* i. 77. 1833.
Sepiola Grantiana Féruss. *Sepioles*, t. 2. f. 3, 4., *Magas. de Zool. Bull.* p. 66. 1835.
Sepiola Devigniana Gervais & Van Beneden, *Bull. Acad. Brux.* p. 10. 1838.

Hab. British Channel and the Mediterranean.

- a, b, c.* Medway, near Nore. In spirits. Presented by Rev. J. Henslow. Mus. Leach.
d. Berwick-upon-Tweed. In spirits. Presented by G. Johnston, M.D.
e, f. Mediterranean. In spirits. Presented by R. B. Webb, Esq.
g. Sandgate. Not good state. In spirits. Presented by Rev. G. E. Smith.
h. Hastings. In spirits. Presented by W. E. Leach, M.D.
i, j. ————— ? In spirits. ————— ? Some of the cups of the sessile arms larger than the rest.

2. SEPIOLA OWENIANA.

Body elongate, ovate, smooth, rather pointed behind. Fins very small, far apart, nearly circular. Sessile arms elongate, slender, subulate, unequal; order of their length, 2, 3, 4, 1; cups oblique, rather compressed, rounded, with a large opening, in two distinct alternating lines; rings entire. Tentacular arms very long, very slender; club small; cups very crowded, and exceedingly minute; aquiferous pores two. Shell ——— ?

Sepiola Oweniana D'Orb. & Féruss. *Céph. Acét.* 229. n. 1., *Sepioles*, t. 3. f. 1—5. 1839; *D'Orb. Moll. Viv. et Fos.* i. 252. n. 5.

Hab. ————— ?

3. SEPIOLA ? JAPONICA.

Body oblong. Fin widened. Sessile arms unequal, dorsal short, lateral ones longest; cups in two separate alternating lines, with a clavate muscular tube up between the cups. Tentacular arms long, cylindrical, scarcely enlarged at the end; cups very minute, only one fourth of the size of those of the sessile arms. Shell ——— ?

Tilesius, *Krusenstern, Voy.* t. 88. f. .
Sepiola Japonica D'Orb. & Féruss. *Céph. Acét.* 234. n. 3. 1839;
D'Orb. Moll. Viv. et Fos. i. 251. n. 3.

Hab. Japan.

†† *The sessile Arms with two Rows of Cups; the lower Pair with eight Rows of smaller Cups at the Tip.*

4. SEPIOLA ATLANTICA.

Body oblong, purse-shaped, rounded behind. Fins oval, far apart. Sessile arms short, unequal; proportionate length, 3, 2, 4, 1; cups small, oblique, in two series; lateral arms larger; fourth or the ventral pair with two rows at the base, seven or eight crowded rows of smaller cups at the tip. Tentacular arms rather long. Shell linear, narrow, gradually enlarged upwards, and spathulate behind the tip, sides thickened.

Loligo Sepiola Bouchard, Cat. des Moll. Mar. du Boulonnais, 71. ? 1835.

Sepiola vulgaris Gervais & Van Beneden, Bull. de l'Acad. de Bruxelles, iv. n. 7. 1838, not Grant.

Sepiola atlantica D'Orb. & Féruss. Céphal. Acét. 235. n. 4., Sepioles, t. 4. f. 1—12. 1839; D'Orbigny, Moll. Viv. et Fos. i. 247. t. 10. f. 1—12. 1845.

Sepiola oceanica D'Orb. Moll. Viv. et Fos. t. 10. f. 13. 1845.

Hab. Atlantic Ocean.

M. D'Orbigny, at page 247., describes the dorsal pair of sessile arms as having four rows of cups, but he does not mention this in the longer description. The British specimens in the British Museum do not belong to this species.

††† *The sessile Arms with eight Rows of Cups.*

5. SEPIOLA STENODACTYLA.

Body short, rounded behind. Fins subcircular. Head large. Sessile arms thick and short, rather unequal; cups large, spherical, in seven or eight rows, rather irregularly disposed. Tentacular arms long, slender; club indistinct; cups very minute.—Purple, arms cross banded.

Sepiola stenodactyla Grant, Trans. Zool. Soc. Lond. 1833, i. 84. t. 11. f. 1, 2. and f. 6. apex of sessile arms; Gervais et Van Beneden, Bull. de l'Acad. de Bruxelles, v. n. 7. from Grant; D'Orb. et Féruss. Céph. Acét. 238. n. 5., Sepioles, t. 2. f. 1, 2. 6.; D'Orb. Moll. Viv. et Fos. i. 252. n. 4.

Hab. Mauritius. Mus. Zool. Soc.

The name *stenodactyla* must have originated in a mistake, for Dr. Grant expressly says the arms are proportionally much thicker and shorter than in *S. vulgaris*, l. c. p. 85.

* *Body and Head tubercular beneath; internal Cartilage of Mantle broad, contracted in the Middle.*—*Sepiolidea D'Orb.*

6. SEPIOLA LINEATA.

Head and body smooth above, strongly tubercular on the sides beneath, tubercle with a horny centre, dorsal edge of mantle bearded. Body short, rounded. Sessile arms short, quadrangular, rather unequal; two upper pairs slenderer and shorter, and webbed at the base; cups hemispherical, in two alternate regular series on the base, and then small and in four series; their rings very high, and with an external border. Tentacular arms slender, lanceolate at the end, and with twenty series of very numerous, exceedingly small, crowded cups.—Whitish, with longitudinal blue or opaque white lines.

Sepiola lineolata Quoy & Gaim. *Zool. Voy. Ast.* ii. 82., *Moll.* t. 5. f. 8—13. 1832; *Gervais et Van Beneden, Bull. de l'Acad. de Bruxelles*, v. 7.

Sepioloidea lineata D'Orb. & Féruss. *Céphal. Acét.* 240. t. 3. f. 10—18. 1834, *Ann. Sci. Nat.* xvi.; *D'Orb. Moll. Viv. et Fos.* 1. 242. t. 9.

Hab. Jervis Bay, New Holland.

11. FIDENAS.

Body oblong, rounded behind, united to the head by a broad cervical band; a linear cartilage on each side, in the base of the siphuncle. Fins oblong, on the sides of the back.—*Head* moderate. Eyes large, lateral.—*Sessile arms* subulate, roundish, elongated, tapering, free, except the third and fourth pairs, which are united together by a short web. Cups very small, globular, two-rowed, longly pedunculated; peduncles suddenly contracted, very thin near the cup. Tentacular arms destroyed?—*Siphuncle* very large, long, free from the head.—*Shell* ———? or none.

Is this the same as, or allied to, *Rossia subulata*? but the cups are said to be supported on a short pedicel; has that species a cervical band? for the bone is described as like *Sepiola*.

1. FIDENAS PENARES.

Hab. Indian Ocean.

a. Singapore. In spirits. Not good state, lost the pedunculated arms.

Suborder II. *SEPIAPHORA*.

Shell cellular, calcareous; back hard; cavity filled with laminae, separated by numerous cells.—*Head* united to the mantle by a broad cervical band. Mantle attached behind, free in front, and with two internal cartilaginous longitudinal ridges fitting into cartilaginous grooves in the base of the sides of the siphuncle. Fin as long as the sides of the back.

Teuthomorpha (Sepiæ) (pars) *Bronn, Gesch. der Nat.* iii. 588.

FAM. VI. SEPIADÆ.

Body short, oval or rounded, depressed. Fins lateral, separated from one another behind by a neck or free space.

Head broad. Eyes lateral. Lower eyelid distinct. Auricular ridges none. Buccal membrane without cups.

Sessile *arms* with four rows of cups; horny ring of the cups uniformly convex, and narrowed above and below, without any external ridges. Tentacular arms entirely retractile into the cell at their base.

Siphuncle without any superior band at its junction with the head, with an internal valve.

Shell internal, as long as the back, calcareous, filled with irregular cells, without any siphon.

Sepidæ (pars) *D'Orb. Moll. Canar.* 20. 1837, *Moll. Viv. et Fos.* i. 237. 1845.

Sepiana *Gray, Proc. Zool. Soc.* 1847, 205.

Sepiadæ *Owen, Trans. Zool. Soc.* ii. 2. 1838; *Gray, Syn. B. M.* 1842. 92.

Sepioïdæ *Agassiz, Nomencl.*

Sepiacea (pars) *Desh. Ency. Méth.* ii. 1830.

Sepiæ (les Seiches) *Risso, Eur. Merid.* iv. 7. 1826.

1. SEPIA.

Body large, ovate or oblong, fleshy, depressed, rounded behind, with a rounded projection on the front of the dorsal edge. Fin narrow, lateral, bordering the whole side of the body, and separate behind. The ventral part of the mantle furnished with an oblique oblong tubercle fitting to a concavity in the sides of the

lower part of the siphuncle; the cervical part under the front of the shell, with longitudinal central ridge fitting into a groove on the back.—*Head* very large, wider than long, without any crest or cervical plaits. Eyes large, with an inferior eyelid, and a lacrymal opening in the front of the folds of the eyelid. Ear at the lower part of the globe of the eye. Buccal aquiferous openings six, between the base of the arms and the lips; buccal membrane seven-lobed, the two lower lobes least marked.—Sessile *arms* short, strong; dorsal pair compressed, lateral pair depressed, third pair with a membranous crest; protecting membrane of the cups very short; cups spherical, fleshy, oblique peduncled, in four rows; fourth pair free, rest united by a slight web at the base. Tentacular arms entirely retractile, long, slender; terminal club large, with an external fin; horny ring convex externally, contracted above and below.—*Siphuncle* large, short, without any band at the junction to the head, and with a large internal valve.—*Shell* (Sepiotaire *Blainv.*) embedded in the back of the animal, as long as the body, calcareous, depressed, ovate or oblong, externally convex, rugose, hard, with a horny edge and acute tip. The cavity is filled with very oblique layers of a cellular spongy substance, sometimes leaving a small, simple, conical cavity under the apex.

Sepia Plinius.

Sepia sp. *Linn. Cuvier, Anat. Comp.* 1800, *Règ. Anim.* ii. 365. 1817.

Sepia Lamck, Syst. 59. 1801; *Blainv. Malac.* 1825; *Gray, R.*

Zool. Soc. 1847, 205.; *D'Orb. Moll. Viv. et Fos.* i. 261. 1845.

Octopodia sp. *Schneider.*

Sæpia Dumeril, Zool. Anat.

SHELL. *Beloptera* A. *Blainv. Malac.* 621. 1825, *Belemn.* 110. 1837.

Sepiostera *Desh. Lyell, Princ. Append.* 40. 1833.

Sepiostaria *Blainv. Belemn.; Voltz, Mém. Soc. Strasb.* 1830.

Belosepia *Voltz, Belemn.* 23. 1830.

The shells of the species may be arranged as follows:—

* *Shell oblong.*

† *Apex very blunt.* *S. officinalis*, n. 1. *Férussac, Céph. Crypt.* t.

2. *S. latimanus*, n. 5. t. 12. f. 1, 2.

†† *Apex produced.* *S. vermiculata*, n. 7. t. 13.*

S. Rouxii, n. 2. t. 19.

S. Rappiana, n. 6. t. 10. *S. Bertheloti*, n. 12. t. 11. t. 23.

S. Hierredda, n. 4. t. 13. t. 18.

S. aculeata, n. 15. t. 5. and t. 25. *S. Blainvillii*, t. 21.

S. rostrata, n. 22. t. 8. t. 26.

††† *Apex very blunt, and produced.* *S. tuberculata*, n. 6. t. 6.
(*S. papillata*, t. 3. *S. mammillata*, t. 4.*)
S. Lefebrei, n. 8. t. 24. f. 1. 6.

** *Shell oblong, produced behind.*

S. inermis, n. 20. t. 6.* (*S. sinensis*, n. 20.) *S. ornata*,
n. 19. t. 22. *Microcheirus*, n. 21. (*inermis*, t. 20.)

*** *Shell very narrow behind, and arched.*

† *Apex simple.*

S. australis, n. 18. t. 12. f. 7—11. *S. Rupellaria*, n. 16.
t. 13. f. 10. 13. *S. capensis*, n. 28. t. 7. f. 113.
S. Orbigniana, n. 27. f. 5. *S. australis*, n. 23. t. 7. f. 4.

†† *Apex dilated.*

S. elegans, n. 26. t. 8. f. 1—5. *S. elongata*, n. 17. t. 24.
f. 7—10.

The shell of *S. officinalis* and *S. apama* have the inside of the front part, which is next to the back of the animal, covered with a hoodlike horny plate, apparently formed of the continuation of the cartilaginous margin which has not been observed in the other species.

See Longchamps (*Mém. Soc. Lin. Norm.* v. 1835, 79.) and Buckland (*Bridgewater Treat.* ii. t.) on the structure of the shell.

Synopsis of the Sections of the Genus.

§ Sessile Arms with small equal Cups, all in four regular series.

* Tentacular Arms with five or six series of unequal-sized Cups.

** Tentacular Arms with five or six series of subequal moderate-sized Cups.

3 * Tentacular Arms with twenty series of unequal-sized Cups.

4 * Tentacular Arms with eight or ten series of small equal Cups.

§§ Sessile Arms with small equal Cups; the two dorsal Arms with only two rows, rest with two and four.

§§§ Sessile Arms with unequal-sized large and small Cups.

N.B.—When the animal is unknown, the species is arranged next to that whose shell it most resembles.

§ *Sessile Arms with small equal Cups placed in four regular alternating Lines.*

* *Tentacular Arms with unequal-sized Cups placed in five or six Lines.*

1. SEPIA OFFICINALIS.

Body ovate, depressed, smooth. Head with two elongated, and some smaller beards above. Sessile arms short, strong, unequal; order of length, 4, 3, 2, 1; ring of cups smooth, entire. Tentacular arms much enlarged, with six alternating lines of cups, the five central cups much larger; rings of the larger cups smooth, of the smaller ones toothed. Shell ovate, compressed, wrinkled above, semi-cartilaginous on the edge and behind, rounded posteriorly; when young the apical beak is conical, prominent, and the upper part of the last internal plate occupied; half the beak becomes immersed in the cartilages, and the plate is diminished to one third the length of the cavity in the adult.—Back purple, with darker cross bands, forked, and with small white spots on the side.

Sepia officinalis Linn. *Fauna Suecica*, n. 2106., *Syst. Nat.* edit. 12. 1095. n. 2.; *Gmel. Syst. Nat.* edit. 13. 3149. n. 2.; *Scopoli, Hist. Nat. Obs. Zool.* 127.; *Pennant, Brit. Zool.* iv. 55.; *Gronovius, Zoophyl.* 244. n. 1021.; *Brug. Encyc. Méth.* t. 76. f. 56.; *Wulfen, Nov. Act. Phys. Med. Berlin*, viii. 379.; *Lamarch, Mém. Soc. Hist. Nat. Paris*, 4., *Syst. des Anim. s. Vert.* 59., *Hist. An. s. Vert.* vii. 668.; *Bosc, Hist. Nat. des Vers*, i. 45. n. 1.; *Leach, Nat. Miscell.* iii. 138.; *Carus, Icon. Sep. Nov. Act. Nat. Cur.* xii. 317. t. 28.; *Martens, Reise nach Venedig*, ii. 436.; *Payrad. Cat. Moll. de Corse*, 173. n. 54.; *Risso, Hist. Nat. Eur. Merid.* iv. 3. n. 10.; *Blainv. Dict. Sc. Nat.* xlvi. 284., *Faune Franç.* 18.; *Deshayes, Enc. Méth. Vers*, iii. 944. n. 1.; *Bouchard, Cat. Moll. Mar.* 72. n. 125.; *Potiez et Mich. Gal. Moll. de Douai*, i. 8. n. 1.; *Philippi, Enum. Moll. Sic.* 241. n. 1.; *D'Orb. Moll. des Canar.* 20. n. 4., *Céphal. Acét.* 260. n. 1., *Seiches*, t. 1, 2, 3. f. 1—3. t. 17. f. 12., *Paléont. univ.* t. 3. f. 1—5. t. 4. f. 13—16., *Paléont. étrang.* t. 3. f. 1—5. t. 4. f. 13—16.; *Cantraine, Malac. Nouv. Mém. de Brux.* xiii. 14. n. 1.; *D'Orbigny, Moll. Viv. et Fos.* i. 272. t. 12. f. 1—5. t. 13. f. 13—16.

Seiche commune Montfort, Buff. de Sonnin. Moll. i. 171.

Sepia rugosa Bowdich's *Elements of Conchology*, t. 1. f. 1.

Sepia Schneider, *Sammlung Verm.* 108.

Hab. Atlantic Ocean, Coasts of Europe and Africa, Mediterranean.

a. Torbay, Devonshire, England. In spirits. Presented by J. R. Griffith, Esq.

- c. ————— ? In spirits. Not good state.
 d. Torbay. Egg. In spirits. Presented by J. R. Griffith, Esq.
 e. Torbay. Young, one day old In spirits. Presented by J. R. Griffith, Esq.
 f. ————— ? In spirits. Not good state.
 g, h. Shell. Adult. Dry. Coast of England.
 i. Shell. Adult. Dry. Malta. Presented by Miss E. Attersoll.

2. *SEPIA ROUXII*.

Body ovate, smooth, acuminate in front, rounded posteriorly. Fins broad. Head smooth. The buccal membrane provided with five prominent lobes; lower part thicker, fleshy, without any lobes; the lower bands not marked externally. Sessile arms elongate, unequal; order of length, 4, 3, 2, 1; with four rows of cups furnished with rings armed with long acute teeth on their border side. Tentacular arms with six rows of cups. the two middle rows composed of seven very large cups, armed with rings, with short teeth all round. Shell ovate, oblong, wrinkled and tuberculated, thickened underneath posteriorly, with a short blunt beak, and a very thick convex diaphragm occupies all the extremity of the cavity.

Sepia Rouxii D'Orb. in *Féruss. Céph. Acét.* 271. n. 3., *Seiches*, t. 19.; D'Orb. *Moll. Viv. et Fos.* i. 290.

Hab. Red Sea, Indian Ocean, Bombay.

- a. Tunis, Africa. Adult. In spirits. Presented by Mr. Louis Frazer.
 b. The bone of a.
 c, d. Tripoli, Africa. Young. In spirits. Presented by J. Ritchie, Esq.
 e, f. The bones of c, d.
 g, h, i. The bones dry. Young.
 j. Dalmatia. Young. In spirits. From Mr. Heckel's Collection.
 k. The shell of j.

3. *SEPIA VICELLIUS*.

Blackish, smooth. Sessile arms thick; lower rather larger; cups rather large, in four regular series; rings entire. Tentacular arms moderate; clubs moderate, slightly finned behind; cups smaller than those of the sessile arms, in five rows, the five or six of those in the central line about treble the size, with dark rings, very minutely and regularly bluntly toothed on the edge. Shell oblong, rather attenuated above, dilated behind; apex

blunt, not produced beyond the horny part at its base; back rugose, subconcentric.

Hab. ————— ?

a. In spirits.

b. Its bone dry.

4. SEPIA HIERREDDA.

Body ovate, depressed, rather tuberculate. Fins broad. Head with a beard on each eye. Ear with a longitudinal and a transverse ridge. Sessile arms thick, unequal; order of their length, 4, 3, 1, 2; rings of cups with small teeth. Tentacular arms with very unequal cups in six lines, the middle ones being very large; the rings entire. Animal brown and yellow marbled, white-spotted, and with a series of six white lines on the sides. Shell ovate, compressed, wrinkled above, acuminate anteriorly, rounded posteriorly, with a long curved beak; the last plate in all ages occupied half the cavity.

Sepia Hierredda Rang, D'Orb. et Féruss. Seiches, t. 13., Magaz. de Zool. 75. t. 100.; D'Orb. Moll. des Canar. 21. n. 5., Moll. Viv. et Fos. i. 278.; D'Orb. et Féruss. Céph. Acét. 268. n. 2., Seiches, t. 13. t. 18.

Hab. Atlantic Ocean, Coast of Africa, Cape of Good Hope, Island of Teneriffe.

5. SEPIA LATIMANUS.

Body ovate, smooth, truncated in front, pointed behind. Fins narrow, blue-edged. Sessile arms slender, quadrangular, elongate, unequal; order of length, 4, 3, 2, 1; with four rows of cups; horny rings with very fine, close teeth. Tentacular arms dilated, strongly palmated, with five lines of cups, with six or eight very large ones, having their horny rings plaited on the edge. Shell oblong, rounded anteriorly, obtuse posteriorly, longly and acutely beaked.

Sepia latimanus Quoy & Gaim. Zool. Voy. Astrol. ii. 68., Atl. Moll. t. 2. f. 2. 11. 1832; D'Orb. et Féruss. Seiches, t. 12. f. 1—6. t. 17. f. 16, 17. (1839); D'Orb. Moll. Viv. et Fos. i. 291.

Sepia Rappiana Féruss. Pl. des Seiches, n. 10. (1834).

Hab. Indian Ocean, New Guinea, and the Celebes.

6. SEPIA TUBERCULATA.

Body ovate, tuberculated; tubercles very unequal, divided into lobes. Fins narrow. Head tuberculated on the back, sides, and round the eyes, smooth below. Sessile arms short.

unequal; length, 4, 3, 2, 1; with four rows of cups, supported by rings. Tentacular arms thickly clubbed, with five rows of cups; four of them much larger, with oblique, entire rings. Shell very depressed, ovate, nearly equally round at each end, above smooth, and cartilaginous on the sides and ends; beneath very concave.

Sepia tuberculata Lamck. *Mém. Soc. Hist. Nat. Paris*, i. 9. t. 1. f. 1—6., *Hist. An. s. Vert.* 2d edit. vii. 668. n. 2.; *Bosc, Buff. de Deterv. Vers*, i. 45.; *Montfort, Buff. de Sonnin. Moll.* i. 274. t. 7.; *Blainv. Dict. Sc. Nat. Crypt.* f. 2—6., *Malacolog. Atlas*, t. 1. f. 2—6.; *Deshayes, Enc. Méth.* iii. 945. n. 2.; *D'Orb. et Féruss. Céphal. Acét. Seiches*, t. 3 ter, t. 4 bis, t. 6. t. 17. f. 13—15.; *D'Orb. Paléont. univ.* t. 3. f. 11., *Moll. Viv. et Fos.* i. 281. t. 12. f. 11.

Sepia papillata Quoy & Gaim. *Voy. Ast. Zool.* ii. 61. t. 1. f. 6—14. *Féruss. et D'Orb. Céph. Acét. Sepia*, t. 3.

Sepia mamillata Leach, *MS.*; *Féruss. et D'Orb. Céph. Acét. Sepia*, t. 4*.

Hab. Cape of Good Hope.

a. Shell of adult. Dry. Imperfect. Cape of Good Hope.

7. *SEPIA VERMICULATA.*

Body ovate, smooth, acute anteriorly. Fins broad, largely separated behind, dotted with red. Head large. Sessile arms short, thick at their base, unequal; length, 4, 3, 2, 1; with four rows of cups, with entire rings. Tentacular arms cylindrical, very long; club flattened, with very numerous cups, eight or ten larger than the rest, with entire rings. Shell oblong, ovate, bluntly beaked posteriorly.

Sepia vermiculata Quoy & Gaim. *Voy. Ast. Moll.* ii. 64. t. 1. f. 1—5. (1832); *D'Orb. et Féruss. Céph. Acét. Seiches*, t. 3. bis; *D'Orb. Moll. Viv. et Fos.* i. 284.

S. Hierredda var.? *D'Orb.* l. c. 285.

Hab. Cape of Good Hope.

8. *SEPIA LEFEBREI.*

Animal ———? Shell ovate, oblong, rounded at each end, concentrically wrinkled above, nearly flat above, strongly gibbous and elevated in the middle beneath, with a border all round.

Sepia Lefebrei *D'Orb. Céphal. Acét.* t. 24. f. 1—6. (shell), *Paléont. univ.* t. 4. f. 5—6., *Moll. Viv. et Fos.* i. 288. t. 13. f. 5—6.

Hab. Red Sea.

Chiefly differs from *L. gibbosa* in the shell appearing to be broader.

9. SEPIA GIBBOSA.

Animal ————? Shell elongate, boat-shaped, rounded at each end, gibbous beneath, obtuse.

Sepia gibbosa Ehrenberg, *Symbolæ Phys. Sepia*, n. 2.; *D'Orb. Moll. Viv. et Fos.* i. 287.

Sepia gibba *D'Orb.* l. c. 288, 289.

Hab. Red Sea.

10. SEPIA APAMA.

Animal ————? Shell oblong, elongate; the posterior part much produced, subacute, with a strong callosity at the posterior edge of the cavity. Apex blunt, rugose; anterior extremity rounded, covered with strong cartilaginous side; central portion rather convex.

Hab. Australia.

a. Port Adelaide. Shell. Dry.

Most like *S. Lefebrei*, but the posterior extremity is much more produced and subacute, and the inner side of the central part is not convex.

** *Cups of tentacular Arms in five or six Series, subequal, moderate-sized.*

† *Shell oblong.*

11. SEPIA LYCIDAS.

Animal ————? Sessile arms with four series of rather large equal cups. Tentacular arms elongate: club distinct, slightly finned behind, with five series of cups; those of the middle of the arms equal-sized, nearly the size of those on the sessile arms; of the lower and upper end smaller. Shell oblong, rather elongate; slightly produced above; narrowed, produced, and rounded behind. Apex blunt; cavity with a strong, raised, rounded ridge on each side behind; disk convex, with a broad central concavity extending nearly the whole length.

a. Animal salted, from Canton market. Presented by T. Lay, Esq.

b. The shell (dry, rather broken) from *a.*

†† *Shell elongate, narrow.*

12. *SEPIA BERTHELOTI.*

Body oblong, elongated, subcylindrical, smooth, blunt behind, and pointed in front. Fins narrow, broader behind. Ears simple. Sessile arms long, slender, unequal; order of length, 4, 2, 1, 3; cups in four rows, equal-sized. Tentacular arms long, slender, finned; cups in five rows, the central one largest, with oblique rings, toothed all round. Shell elongate, very narrow, finely wrinkled above, acuminate in front, and with a long acute beak, and wings on the side behind.—Purplish, with oblong pale spot on the side.

Sepia Bertheloti *D'Orb. & Féruiss. Monog. des Céph. Acét.* t. 11. t. 23. 1835; *D'Orb. Moll. des Canar.* 21. n. 6. t. 11., *Moll. Viv. et Fos.* i. 277.

Hab. Atlantic Ocean, Teneriffe.

13. *SEPIA PLANGON.*

Body oblong. Fins narrow, pale. Back of mantle much produced in front. Sessile arms rather thick; cups small, distant, in four rows. Tentacular arms slightly clavate, with a few very small, subequal cups. Shell elongate, narrow, dilated behind. Apex elongated, acute, recurved; cavity concave behind, with a strong, shelly, diverging ridge on each side, with a wide central groove.

a. Port Jackson. In spirits. Dr. J. Robertson, Antarctic Expedition.

b. The shell of *a.* dry.

c. Australia. Shell. Dry. Presented by A. Sinclair, M. D. R. N.

Shell most like *S. Orbignyana*, but the inner part has not the ridges.

3* *Tentacular Arms with unequal-sized Cups placed in ten Series.*

14. *SEPIA SAVIGNII.*

Body ovate, oblong; back with triangular beards, forming a series on the sides; smooth below. Fins broad, as long as the body, equal. Sessile arms thick, very unequal; order of length, 4, 3, 2, 1; rings of cups toothed. Tentacular arms clubbed, with ten lines of cups, those of the two middle lines larger, with toothed rings. Shell — — — ?

Sepia officinalis *Andouin, Expl. Somm. des Pl. d'Egypt, t. 5. t. 1. f. 3. 1827.*

Sepia Savignyi *Blainv. Dict. des Sc. Nat. xlviii. 285. 1827; D'Orb. et Féruss. Céphal. Acét. Seiches, t. 4.; D'Orb. Moll. Viv. et Fos. i. 287.*

Sepia Savigniana *Féruss. Seiches, t. 4. 1828.*

Sepia Pharaonis *Ehrenberg, Symb. Phys. An. Mollusc. Céphal. Sepiacea, n. 1. 1831.*

Hab. Red Sea.

4* *Tentacular Arms finned, with numerous, small, equal-sized Cups, placed in eight or ten Lines.*

† *Shell very narrow behind.*

15. SEPIA ACULEATA.

Body ovate, rounded, smooth, rather pointed behind. Fins broad, thick, commencing rather behind the front edge. Sessile arms elongate, unequal; order of length, 4, 3, 2, 1; cups globular, in four series, with rings minutely toothed all round. Tentacular arms with very small cups in ten or twelve lines, with distant acute teeth on the ring. Shell ovate, oblong, tubercularly wrinkled, depressed, rounded at the ends, and with a long, straight, acute beak, convex beneath in front, and concave behind.

Sepia aculeata *Van Hasselt, MS.; D'Orb. et Féruss. Céph. Acét. Seiches, t. 5. bis, t. 25.; D'Orb. Moll. Viv. et Fos. i. 296.*

Hab. Indian Ocean, Java.

16. SEPIA RUPELLARIA.

Animal ———— ? Shell elongated, very narrow, depressed, much arched behind, prolonged and acuminate in front; bisulcated above; one-ribbed longitudinally, posteriorly; concave underneath.

Sepia Rupellaria *D'Orb. & Féruss. Céphal. Acét. Seiches, t. 3. f. 10—13. 1839, shell; D'Orb. Moll. Viv. et Fos. i. 276.*

Hab. Neighbourhood of Rochelle, &c. Ireland? *Ball, 1839.*

17. SEPIA ELONGATA.

Animal ———— ? Shell very elongated, narrow, pointed in front, enlarged behind, and provided with a wing-like expansion and a long acute beak, rugose above, with a medial longitudinal rib; swollen beneath, gibbous in the centre.

Sepia elongata *D'Orb. & Féruss. Céphal. Acét. Seiches*, t. 24. f. 7—10. 1339, shell; *D'Orb. Paléont. univ.* t. 4. f. 7—10. shell, *Paléont. étrang.* t. 4. f. 7—10. shell, *Moll. Viv. et Fos.* i. 289. t. 13. f. 7—10. shell.

Hab. Red Sea.

18. *SEPIA SINOPE.*

Animal ——— ? Bone elongate, sublanceolate; back smooth, slightly concentrically wrinkled, with two deep grooves in the side of the centre of the back; rather tapering at the upper part; apex imperfect.

Sepia australis *Quoy & Gaim. ? Féruss. Céphal. Acét. Sepia*, t. 12. f. 9. shell (not *D'Orb.*).

a. China. Bone. Dry. Imperfect.

†† *Shell oblong, posterior end expanded, produced, cartilaginous, not beaked, convex beneath.*—*Sepiella.*

19. *SEPIA ORNATA.*

Body ovate, elongated, very smooth, brown, spotted with white. Fins very broad, broader behind. Ears with broad thick edges. Sessile arms thick, short, unequal; length, 4, 3, 1, 2; cups in four rows; rings oblique, smooth on the narrow, and with short unequal teeth on the broad edge. Tentacular arms lanceolate, with very small close cups of equal size in eight or ten lines, with toothed rings. Shell oblong, elongate, straight, compressed, wrinkled above, obtuse anteriorly, winged posteriorly.

Sepia ornata *Rang, Magas. de Zool.* 1837, 76. t. 101.; *D'Orb. et Féruss. Céphal. Acét.* t. 22.; *D'Orb. Paléont. univ.* t. 3. f. 12. t. 4, f. 1, 2., *Paléont. étrang.* t. 3. f. 12. t. 4. f. 1, 2., *Moll. Viv. et Fos.* i. 280. t. 12. f. 12. club of tentacle, t. 13. f. 1, 2. shell.

Hab. Coasts of Africa, at Goree, Senegal, &c.

20. *SEPIA SINENSIS.*

Body oblong, elongate, smooth, narrow, blunt behind. Fins narrow, rather wider behind, beginning behind the front edge. Sessile arms with four series of small cups. Tentacular arms rather short, slender, without any distinct club; slightly impressed at the top externally; cups very minute or entirely wanting. Shell oblong, elongate, straight, rounded in front, hinder ends not beaked above, expanded and produced into a cartilage behind; convex beneath.

Sepia inermis Hassell, *MS.*; *Férussac, Céph. Acét.* t. 6*. not t. 20. part; *D'Orb. Moll. Viv. et Fos.* i. 295.

Sepia sinensis *D'Orb. Céph. Acét. Seiches*, t. 9. f. 1, 2. 1839, from Chinese drawing, *Moll. Viv. et Fos.* i. 299.

Niao-tse-in, *Encyclopédie Japonaise.*

a. China. In spirits. Presented by R. Card, Esq.

b. The shell of *a.*

c, d. Animals. Salted specimens, as sold in Canton market. Presented by Tradescant Lay, Esq.

e, f. The shell of *c.* and *d.*

21. SEPIA MICROCHEIRUS.

Body ovate, oblong, smooth, rounded behind, spotted with violet. Fins broad, thickened, wider behind. Ears with a raised edge behind. Sessile arms short, triangular, unequal; order of length, 4, 3, 1, 2; cups in four rows; rings entire on the narrow, and narrow teeth on the broad edge. Tentacular arms lanceolate; cups exceedingly small, equal-sized, in ten or twelve series. Shell ovate, oblong, wrinkled, acuminate in front, narrow and rounded behind; convex above, cartilaginous underneath, and expanded into two wings behind; beneath with a strong central groove in front.

Sepia microcheirus Gray, *Brit. Mus.* 1830.

Sepia inermis Hassell, *MS.* fide *D'Orb. et Féruss. Céph. Acét. Seiches*, t. 20. f. 1—9. 1839, not t. 6.; *D'Orb. Paléont. univ.* t. 3. f. 9, 10., *Paléont. étrang.* t. 3. f. 9, 10., *Moll. Viv. et Fos.* i. 295. t. 12. f. 9, 10. ring of cup.

Hab. India.

a. India. Young. In spirits. Presented by General Hardwicke.

b. The shell of *a.* dry.

c. India. Young. In spirits.

d. The shell of *c.* dry.

e. India. Young.

f. The shell of *e.* dry.

g. India. ? In spirits. Presented by Mr. John Leadbeater, senior.

h. The shell of *g.* in a bad condition. In spirits.

i. India. Very young. In spirits. Presented by General Hardwicke.

††† *Shell oblong, rounded behind, beaked*

22. SEPIA ROSTRATA.

Body thick, rounded, narrow before, obtuse behind. Fins thick, narrow in front, dilated behind. Sessile arms elongate, slender,

unequal; order of length, 4, 3, 2, 1; cups spherical, with very small smooth-edged rings. Tentacular arms lanceolate, with very small numerous equal-sized cups in many lines, and with toothless rings. Shell ovate, oblong, tubercularly wrinkled, depressed, broader in the middle, narrow behind, and furnished with an elongated compressed beak beneath; convex in front, concave and with a diaphragm behind.

Sepia rostrata *D'Orbigny*, *Céphal. Acét. Seiches*, t. 8. f. 6. 1826, t. 29. 1839, *Paléont. univ. & Paléont. étrang.* t. 4. f. 11, 12., *Moll. Viv. et Fos.* i. 293. t. 13. f. 11, 12. shell.

Hab. Indian Ocean, Bombay, Ceylon, and New Holland.

In this and in several of M. D'Orbigny's descriptions, the French and Latin versions differ. I have taken the French as being most probably the correct one.

23. *SEPIA INDICA*.

Body short, round, smooth. Fins thick, narrow, broader behind. Sessile arms short, unequal; order of length, 4, 3, 1, 2; cups hemispherical. Tentacular arms very long, slender; cups very small, equal-sized, in ten or twelve series. Shell ovate, oblong, wrinkled, acuminate at each end, shortly beaked behind, with a thick convex diaphragm behind beneath.

Sepia Blainvillei *D'Orb. & Féruss. Céph. Acét.* t. 21. 1839, not Desh. 1837; *D'Orb. Moll. Viv. et Fos.* i. 295.

Sepia indica *D'Orb. Moll. Viv. et Fos.* i. 298. 1845.

? *S. australis* *D'Orb. Céphal. Acét. Sepia*, t. 7. f. 4. bone of young, *Moll. Viv. et Fos.* i. 294. not Quoy.

Hab. Bombay, New Holland.

a. Cape Upstart, Australia. In spirits. Presented by J. B. Jukes, Esq.

24. *SEPIA MYRSUS*.

Animal ——— ? Bone oblong, the hinder extremity rounded, rather produced, shelly, with a slight thickening within; apex blunt, rather produced, inner surface suddenly thickened, the upper half convex, with a slight central depression.

Hab. China.

a. China. Shell. Dry.

25. *SEPIA MESTUS*.

Animal ——— ? Bone oblong, rounded behind; cavity narrow behind, rapidly widening (surface destroyed); apex elongated, acute, recurved, shelly.

Hab. Australia.

a, b. Australia. Shell. Dry. Presented by Andrew Sinclair,
M. D. R. N.

§§ *Sessile Arms with equal, small Cups. The upper Pair with two Rows of Cups.*

26. SEPIA ELEGANS.

Body ovate, oblong, elongate, smooth, acuminate anteriorly. Fins very narrow. Head smooth. Sessile arms short, unequal; length, 4, 3, 1, 2; cups spherical, oblique, in two rows on the dorsal pair and the base of the other, and in four rows on their ends, the second and middle rows of the latter larger. Tentacular arms long, with five series of small cups and three much larger ones; with the rings rather oblique and toothed. Shell elongated, arched behind, very narrow, winged and pointed in front, very narrow and winged behind, with a medial crest externally.

Sepia elegans D'Orb. *Tab. Méth. Seiches*, t. 8. f. 1—5. 1826; *Blainv. Dict. Sc. Nat.* xlviii. 284., *Faune Franç.* 19.; *Rang, Mag. de Zool.* 1837, 74. t. 99.; *D'Orb. et Féruss. Céph. Acét. Seiches*, t. 8. f. 1—5. t. 27. f. 3—6.; *D'Orb. Paléont. univ.* t. 3. f. 6—8., *Paléont. étrang.* t. 3., *Moll. Viv. et Fos.* i. 285. t. 12. f. 6—8.

Hab. Mediterranean, Messina, Adriatic, Malaga, and Coast of Algiers.

27. SEPIA ORBIGNYANA.

Body oblong, elongated, smooth. Fins narrow, thin. Head very large. Sessile arms short, triangular, unequal; order of length, 1, 4, 3, 2; cups subspherical, in two rows on the base of the three upper pairs, and four on the ventral pair; horny rings entire. Tentacular arms slender; club lanceolate; cups in five lines, with five or six very large ones in the middle line. Shell elongated, grooved above, granular; narrow and acuminate in front; narrowed, thin, rounded, and with an elongated recurved beak behind.—Head and back violet, beneath white.

Sepia Orbignyana Féruss. *D'Orb. Tab. Méth. des Céph.* 66. 1826, *Ann. Sc. Nat.* 1826; *Blainv. Faune Franç.* 19.; *D'Orb. et Féruss. Céphal. Acét. Seiches*, t. 5. t. 27. f. 1, 2.; *D'Orb. Paléont. univ.* t. 4. f. 3, 4., *Paléont. étrang.* t. 4. f. 3, 4., *Moll. Viv. et Fos.* i. 274. t. 13. f. 3, 4.

Hab. Atlantic Ocean and Mediterranean, Naples.

§§§ *Sessile Arms provided with very unequal-sized Cups, the middle one largest. Shell narrowed behind.*

28. *SEPIA CAPENSIS.*

Body ovate, oblong, smooth. Fins dilated behind. Sessile arms short, strong; cups spherical, peduncled, very unequal in size, the middle one largest. Tentacular arms scarcely clubbed; cups slightly oblique, in three series, the middle series with three much largest, and with the rings toothed on the inner edge. Shell much depressed, oblong, elongate, enlarged, and pointed in front, tapering, thin, very obtuse, and with an acute projecting beak behind.

Sepia capensis D'Orb. *Tab. Méth. Céph. Seiches*, t. 7. f. 1—3. 1826, *Moll. Viv. et Fos.* i. 283.; *D'Orb. et Féruss. Céph. Acét.* t. 7. f. 1—3. t. 12. f. 7—11. t. 17. f. 18, 19.

Sepia australis Quoy & Gaim. *Voy. Ast. Zool.* 70. t. 5. f. 3—7. 1832, not D'Orb. 1826.

Hab. Cape of Good Hope.

Var. Shell larger, scarcely so arched and with much longer spine than in M. D'Orbigny's figure. Perhaps a distinct species.

a. Sydney. Shell. Dry. Presented by J. Edwards, Esq. R. N.

b. Australia. Shell. Dry. Presented by A. Sinclair, M. D. R. N.

4 § *Doubtful Recent Species.*

29. *SEPIA MUCRONATA.*

Sepia mucronata Rafin. *Précis des Découv. Somiol.* 29. 1814; *D'Orb. Moll. Viv. et Fos.* i. 299.

Hab. Sicily. Perhaps this is the *S. elegans*.

30. *SEPIA ANTILLARUM.*

Sepia Antillarum D'Orb. *Moll. des Antilles*, i. 33. n. 8. 1838, *Moll. Viv. et Fos.* i. 300.

Sepia Brown, *Nat. Hist. of Jamaica*, 386.

Hab. Jamaica.

5 § *Fossil Species.*

* *Tertiary, Paris Basin.*

31. *SEPIA SEPIOIDEA.*

Shell thick, narrow behind; beak thick, elongate, acute; lower lamina thick, reflexed, deeply radiated, edge toothed; upper callosity deeply rugose.

Guétard, Mém. t. 2. f. 30.

Os de Seiche Cuvier, Ann. Sci. Nat. ii. 482. t. 22. f. 1, 2. 1824.

Beloptera Sepioidea Blainv. Malac. add. 621. t. 7. 1825., Mém. Belemn. 110. t. 1. f. 2.

Sepia Cuvieri D'Orb. Tab. Céphal. 67. 1825; Galeotti, Mem. del Brab. 140. 1837; Desh. Fos. Paris, 758. t. 101. f. 7, 8, 9.

Belosepia Cuvieri Voltz, Jahrb. 410. 1830; D'Orb. Ann. Sci. Nat. xvii. t. 11. f. 11. 13. 1842.

Sepia longispina Desh. Fos. Paris, 757. t. 101. f. 4, 5, 6. 1837.

S. longirostris Desh. F. P. 757. t. 101. f. 10, 11, 12. 1837.

S. Blainvillii Desh. F. P. 757. t. 101. f. 13, 14, 15, 1837.

S. Sepioidea D'Orb. & Féruss. Céph. Acét. Sepia, t. 3. f. 5. t. 14. f. 4—12. t. 16. f. 7. 9.; D'Orb. Paléont. univ. t. 7. f. 4. 8., Moll. Viv. et Fos. i. 269.

Fos. Paris Basin.

a. End of shell and beak. Paris. Presented by J. E. Gray, Esq.

32. SEPIA COMPRESSA.

Shell, hinder extremity very much compressed laterally; beak thick, acute, recurved, lower plate short; lower callosity narrow, prominent; cavity slender, deep, marked with arched striæ.

Beloptera compressa Blainv. Belemn. 110. t. 4. f. 10. 1837.

Sepia Defranci Desh. Fos. Paris, 759. t. 101. f. 1. 3. 1837.

Sepia compressa D'Orb. & Féruss. Céph. Acét. Sepia, t. 16. f. 4. 6. 1839; D'Orb. Paléont. univ. t. 7. f. 1. 3., Moll. Viv. et Fos. i. 271.

Fos. Paris Basin.

**** Upper Oxford Clay.**

33. SEPIA HASTIFORMIS.

Shell elongate, depressed, hastate, ornamented with longitudinal lines of large tubercles, attenuated in front, dilated behind, sides winged and blunt.

S. Knorr, Samml. i. t. 22. f. 2. ?

Sepia hastiformis Rüppell, Abbild. Besch. 9. t. 3. f. 2. 1829; D'Orb. et Féruss. Céph. Acét. Seiches, t. 16. f. 1, 2.; D'Orb. Paléont. univ. t. 5. f. 4. 6., Moll. Viv. et Fos. 265.

Fos. Lithographic Stone, Solenhofen.

34. SEPIA CAUDATA.

Shell elongate, with transverse lines of large tubercles, attenuated and produced in front, dilated and winged behind.

Sepia caudata *Munster*, *Taschenb.* 252. 1837; *Féruss. et D'Orb. Céphal. Acét. Sepia*, t. 15. f. 1, 2.; *D'Orb. Paléont. univ.* t. 5. f. 1. 3., *Moll. Viv. et Fos.* i. 267.

S. hastiformis (adult) *D'Orb.* l. c. 267. ?

Fos. Oxford Clay.

35. SEPIA ANTIQUA.

Shell depressed, with concentric lines of very small tubercles ; attenuated in front ; dilated, winged, and pointed behind.

Sepia antiqua *Munster*, *Taschenb.* 252. 1837 ; *D'Orb. et Féruss. Céph. Acét. Sepia*, t. 14. f. 1, 2.; *D'Orb. Paléont. univ.* t. 6. f. 1. 3., *Moll. Viv. et Fos.* i. 266.

Fos. Lithographic Stone, Solenhofen.

36. SEPIA LINGULATA.

Shell ovate, oblong, with concentric lines of tubercles ; acuminate before and behind.

Sepia lingulata *Munster*, *Taschenb.* 252. 1827 ; *D'Orb. Céph. Acét.* t. 14. f. 3. t. 15. f. 4, 5. t. 16. f. 2. 1839, *Paléont. univ.* t. 6. f. 4. 6., *Moll. Viv. et Fos.* i. 268.

Sepia obscura *Munster*, l. c. 252.

S. regularis *Munster*, l. c. 252.

S. gracilis *Munster*, l. c. 252.

Fos. Solenhofen.

37. SEPIA VENUSTA.

Shell ovate, compressed, transversely striated ; subangular in front, three-lobed and slightly winged behind.

Sepiolithes venustus *Munster*, *MS.*

Sepia venusta *Munster*, *Taschenb.* 252. 1837 ; *D'Orb. et Féruss. Céph. Acét.* t. 15. f. 6. 1837 ; *D'Orb. Paléont. univ.* t. 5. f. 7., *Moll. Viv. et Fos.* i. 268.

Fos. Solenhofen.

Suborder III. *BELEMNOPHORA*.

Shell calcareous, internal, chambered; chamber traversed by a siphon.

Cephal. Polarnaxia Spirularia *Rafin. Anal. Nat.* 141. 1815.

Cephal. Spiriformia and Belemnomorpha *Bronn, Gesch. der Nat.* iii. 536.

FAM. VII. LITUIDÆ.

Body subcylindrical, oblong, end rounded; sometimes furnished with a thickened belt, and with a small semilunate fleshy fin on each side. Mantle free all round, cartilage on the inner side of the ventral surface linear.

Eyes covered with the skin, with a lower eyelid. Buccal membrane without cups.

Arms. Sessile arms triangular, tapering; cups numerous, equidistant, very small, slightly pediceled in six longitudinal series.

Tentacular arms elongate, peduncled, cylindrical; club ———?

Siphuncle conical, with an apical valve.

Shell internal, shelly, spiral, placed symmetrically at the hinder part of the body, the last chamber being in the central line of the back; chambered, the chambers furnished with a siphon, the last chamber only large enough to contain a very small part of the animal.

Spirulidæ *Owen, Trans. Zool. Soc.* ii. 1836; *D'Orb. Moll. Viv. et Fos.* i. 160. 306. 1845.

Lituidæ *Gray, Proc. Zool. Soc.* 1847, 206.

Spirularia (pars) *Rafin. Anal. Nat.* 141. 1815.

Sepiacea (pars) *Desh. Ency. Méth.* iii.

Sepiadæ (pars) *Geinitz, Grund der Verst.* 261. 1845.

Spiriformia *Bronn, Gesch. de Nat.* iii. 535.

Synopsis of Genera.

A. *Shell thin, apex not coated.*

1. LITUUS.

B. *Shell apex enveloped in a thickened laminar Coat, more or less produced behind.*

2. SPIRULIROSTRA. Apex of shell spinal.

3. BELOPTERA. Apex of shell nearly straight.

Munster has given a genus under the name of *Corniculina*, type *C. Ehrenbergi* but it wants further examination; see *Bronn, Gesch. der Nat.* iii. 535. 339.

A. *Shell thin; apex hooked, not enveloped in a thickened laminar Coat.* — Recent.

1. LITUUS.

Body oblong, rather compressed. Mantle free, upper end truncated, with a projection of the margin on the middle of the back, and one on each side of the siphuncle on the ventral side. Fins two, small, caudal on the side of the extremity of the back. End of the body sometimes furnished with a central, rounded, thickened belt, with a central rounded cavity. — *Head* rather compressed; eyes large, covered with the skin. — *Sessile arms* triangular, tapering, rounded externally; cups numerous, equidistant, very small, slightly pediceled, in six longitudinal series; rings entire, or very minute, denticulated; third and fourth shortly webbed, the rest free. Tentacular arms elongated, cylindrical; club ————?. — *Siphuncle* with an apical valve. — *Shell* calcareous, cylindrical, conical, tapering, involute on the same plane, the whorls separate from each other, chambered. Septa concave outwards, with a shelly funnel-shaped siphon on the inner or most curved side, traversing each cell without communicating with each other. Last chamber rather the largest; the nucleus, or first-formed chamber, roundish, swollen, embedded, placed symmetrically, the larger portion being on the hinder part of the centre of the back, and the smaller whorls below on the hinder part of the ventral surface, covered on the sides by the flesh of the body, and above and below by a thin skin.

Péron and Lamarck represent the shell as partly exposed at the end of the body, and this agrees with the imperfect specimen brought home by Captain Belcher, and described by Mr. Owen. Mr. Cranch's fragment, that described by M. De Blainville, and the nearly perfect specimens brought home by Mr. Earl, first figured by Mrs. Gray in the *Annals*, have the shell entirely enclosed, and the hinder part of the body furnished with a thick ring-like fleshy substance, pierced in the centre, and having a slight semicir-

cular kind of fin on each side. It has been suggested that this may depend on the sex of the specimens. De Blainville's specimen was a female, but the sex of the others is unknown.

Lituus Brown, *Jam.* 1756; *Humph. MS.* 1797.

Ammonia Gualtieri, 1742; *Breyn, Polyth.* 17 .

Pedum *Humph. Mus. Calon.* 1797, not Lam.

Spirula Lamck. *Syst.* 1801, *Hist.* ed. 2. xi. 280.; *Blainv. Anal. Franç. et étrang. Anal. et Phys.* i. 369. t. 1837; *Gray, Ann. and Mag. N. Hist.* xv. 257. 234. 445. t.; *D'Orb. Moll. Viv. et Fos.* i. 314.; *Owen, Zool. II. M. S. Samarang*, 1848.

Spirula a. *Blainv. Malac.* 1825; not *b* and *c*.

Spirulæa Péron & LeSueur.

Cornu Ammonis Rumph.

Nautilus sp. *Lister*, 1685.

The following names have been applied to the *Shells* of this genus, but it is impossible to determine to which of the species (if they are distinct) the names belong: —

Nautilus exiguus *Lister, Hist. sive Syn. lib. iv. t. 550. f. 2.*

Cornu Ammonis *Rumph. Thesaur.* t. 20. n. 1.

Cornu Hammonis legitimus *Klein, Ostrac.* 5. sp. 1. t. 1. n. 6.

Cornu Hammonis *Géve, Monat. Belust. ou Essais Verest.* t. 3. f. 8.; *Martini, Conch. Cab.* i. 274. t. 18. f. 1.

Lituus minor *Brown, Nat. Hist. Jamaica*, 398.

Nautilus spirula *Linné, Syst. Nat.* 1767; *Schræter, Einleitung*, i. 13.; *Gmel. Syst. Nat.* 3371. n. 9.; *Schreber, Versuch.* i. 1.; *Burrow, Elements of Conchol.* t. 12. f. 3.

Spirula fragilis *Lamck. Syst. des An. s. Vert.* 102.; *Bosc, Hist. Nat. des Coq.* v. t. 52. f. 2, 3.; *Roissy, Buff. de Sonnin.* v. 15.; *Montfort, Conch. Syst.* 99.; *Schumach. Vers. test.* 256.; *D'Orb. Moll. des Antilles*, i. 64. n. 16., *Moll. Viv. et Fos.* i. 315. t. 16.

Spirula australis *Johnst. Edin. Journ.* April, 1828, p. 74.

Spirula Peronii *Lamarch. Hist. An. s. Vert.* vii. 601. n. 1.; *D'Orb. Tab. des Céph.* 68., *Moll. des Canaries*, 24. n. 8.; *Blainville, Faune Franç.* 22. t. 3. b. f. 1.; *Sowerby, Genera of Shells*; *Blainv. Nouv. An. du Mus.* iii. 18. t. 1.; *Cuvier, Règne Anim.* t. 8. f. 1.; *Potiez et Mich. Gall. des Moll.* i. 9. n. 1.; *Reeve, Conch. Syst.* ii. 296. t. 298.

* *The posterior Part of the Body without any ring, and the last Whorls of the Shell exposed.*—Males?—*Spirula*.

1. LITUUS PROTOTYPUS.

Spirula prototypus *Péron, Voy. Terres Austral.* t. 30. f. 4. 1840, cop. *Gray, Ann. N. H.* xv. t. 15. f. 7.; *D'Orb. Moll. Viv. et Fos.* t. 16. 2.; *Blainville, Man.* t. . f. .; cop. *Gray, l. c.* t. 15. f. 6.

- Spirula australis* Lamck. *Ency. Méth.* t. 465. f. 5. 18—?, cop. Gray, l. c. xv. t. 15. f. 5.; *D'Orb. Moll. Viv. et Fos.* t. 16. f. 1.
Spirula Peronii Lamck. *Hist. Anim. s. V.* vii. 601.?; Owen, in Adams, *Zool. Voy. Samarang, Moll.* 13. 15. t. 4. f. 1. 4, 5, 6, 7. 11, 12, 13, 14, 15.

Hab. Australia?

** *The posterior Part of the Body furnished with a circular Disk, covering and concealing the Shell, and with semicircular Fin-like appendages on each Side.* — Lituus.

2. LITUUS LÆVIS.

Mantle smooth.

- Spirula* ———? Gray, *Ann. Nat. Hist.* xv. 257. f. 5. f. 1. 234. 445.
Spirula Peronii? Reeve, *Elem. Conch.* 16. t. A. f. a. d. not good (not Lamck.).
Spirula australis Owen, in Adams, *Zool. Voy. Samarang, Mollusca*, 13. t. 4. f. 2. 8. 1848, not Lamck.

Hab. New Zealand. Mus. Mr. Cuming.

3. LITUUS VULGARIS.

Mantle pitted with close-set angular depressions, giving it a well-marked, reticulated character; disk and appendages smooth.

- Spirula vulgaris* Leach, *MS.* 1817; Leach, *Tuckey, Voy. Zaire*, append.
Spirula ———? Blainville, *Ann. Franç. et étrang. Anal. Phys.* i. 369. t. ? 1837, cop. *Zool. Voy. Samarang, Moll.* t. 4. f. 15*? cop. *D'Orb. Moll. Viv. et Fos.* t. 16. f. 3. 12.
Spirula reticulata Owen, in Adams, *Zool. Voy. Samarang, Moll.* 13. t. 4. f. 3. 9, 10.

Hab. Timor.

- a. Africa. Skin of the body and shell. In spirits. Presented by J. Cranch, Esq., Congo Expedition.

B. *Shell apex enveloped in a thickened laminal Coat, produced behind.*—Fossil.

2. SPIRULIROSTRA.

Animal ————? only known fossil. — *Shell* calcareous, involute on the same plane, the whole separate from each other, chambered. Septa transverse, concave, with a siphon on the inner or arched side. Shelly case covering the whole of the

shell, rather produced on each side in front, and produced behind into an acute conical tail, leaving a small concavity over the tip in front of the arch of the whorls.

Spirulirostra D'Orb. Ann. Sci. Nat. xvii. 362. t. 11. f. 16. 1842, Moll. Viv. et Fos. i. 312.; Desh. in Lamck. Hist. xi. 248.

1. SPIRULIROSTRA BELLARDII.

Spirulirostra Bellardii D'Orb. Ann. Sci. Nat. xvii. 302. t. 11. f. 16., Moll. Viv. et Fos. i. 312. t. 15.

Fos. Middle Tertiary, Turin.

3. BELOPTERA.

Animal —————? only known fossil. — *Shell* calcareous, conical, straight, or slightly curved, chambered; chambers pierced, with a siphon on the ———? edge. Enveloping case elongate, subcylindrical in front, and sometimes winged on the sides, ending in a blunt beak at the hinder end.

Fos. Lower Tertiary formations.

Beloptera Deshayes, MS, Ency. Méth. ii. 135. 1830, in Lamck. Hist. xi. 243.; Desh. MS. in Blainv. Malac. Supp. 621. t. 11. f. 8. 1825, Mém. Belemn. 3. f. 3. 1827; Sow. Min. Fos. t. 591.; D'Orb. et Féruss. Céphal. Acét. t. 3. f. 7. 9. t. 21. f. 11, 12. 1839, Moll. Viv. et Fos. i. 308.

Sepia species D'Orb. & Féruss. Tab. Méth. Céph. 67. 1825.

Sepia (subgenus) Gray, Proc. Zool. Soc. 1847, 205.

* *Lateral Expansions distinct.*

1. BELOPTERA BELEMNITOÏDEA.

Shell oval, oblong, curved, expanded on the sides; above convex, beneath concave; beak blunt, straight.

Beloptera belemnitoïdea Blainv. Malac. Supp. 621. t. 11. f. 8. 1825; Dal. Sci. Nat. xl. viii. 290. t. 20. f. 8.; Desh. E. M. ii. 135., Fos. Paris, 762. t. c. f. 4, 5, 6.; D'Orb. Moll. Viv. et Fos. i. 808. t. 14. f. 1. 4.

Beloptere Deshayes Blainv. Belemn. t. 1. f. 3.

Sepia Parisiensis D'Orb. & Féruss. Tab. Céph. 67. 1825, Ann. Sci. Nat. ii. 482. vii. 57.

Beloptera Parisiensis D'Orb. Gray, P. Z. Soc. 1847, 205.

Dent de Poisson Guet. Mém. v. t. 2. f. 11, 12.

Beloptera Belemnoidea Blainv.

Fos. Paris Basin.

a. Adult, with large wing-like expansion and deep cavity.

Paris. Presented by J. E. Gray, Esq. ,

- b. Broken, or young? Wings very slightly expanded, very thin, and cavity very small, shallow. Paris. Presented by J. E. Gray, Esq.

** *Lateral Expansion none.*

2. BELOPTERA LEVESQUEI.

Shell oblong, elongate, arched, narrow, cylindrical; three-keeled in front; beaked, blunt, and striated behind.

Beloptera Levesquei D'Orb. et Féruss. Céph. Acét. t. 20. f. 10. 12.; D'Orb. Moll. Viv. et Fos. i. 307. t. 11. f. 5. 7.

Fos. Paris Basin.

3. BELOPTERA ANOMALA.

Shell oblong, elongate, depressed, arched, concave, with two diverged ridges above, behind blunt.

Beloptera anomala Sow. Min. Conch. vi. 184. t. 591. f. 2. 1828; D'Orb. Moll. Viv. et Fos. i. 309. t. 14. f. 8. 10.

Fos. London Clay.

FAM. VIII. BELEMNITIDÆ.

Animal elongated ——— ? only known fossil.

Shell internal, (horny or) calcareous; the apex conical, chambered. Chambers concave, simple, pierced with a marginal siphon on the ventral side; sometimes covered externally with concentric layers, forming a more or less elongate, subcylindrical, conical style.

Belemnitidæ Owen, Trans. Zool. Soc. ii. 1836; D'Orb. Moll. Viv. et Fos. i. 443. 1845.

Onychoteuthidæ (pars) Gray, P. Z. Soc. 1847, 206.

Cephalopodes polythalmes (pars) Lamck. Hist. ed. 2. xi. 268.

Belemnomorpha Bronn, Gesch. der Nat. iii. 536.

Synopsis of the Genera.

A. *Shell conical, naked, not covered with any externally deposited Coat.*

1. *CONOTEUTHIS.* Shell with strong longitudinal keel on the middle of the back.

B. *Shell conical, covered with an externally deposited Coat, forming a more or less elongated cylindrical Style.*

a. *External Coat thin.*

2. BELEMNOTEUTHIS.

b. *External Coat forming an elongate Style.*

3. ACTINOCAMAX. The conical cavity in the style with an elongated longitudinal fissure on the lower side.

4. BELEMNITES. The conical cavity in the style with an entire edge and no longitudinal figure.

A. *Shell conical, thin, naked, not covered with any externally deposited Coat; probably produced behind into a long, slender, dorsal plate.*

1. CONOTEUTHIS.

Animal ————— ? — *Shell.* Cone broad, rapidly enlarging, thin, horny, smooth, marked with very slight rather oblique concentric lines of growth, not covered with any externally deposited calcareous coat, with a well marked strong longitudinal keel on the middle of the back (probably produced into a slender elongated dorsal style). Septa transverse smooth.

Conoteuthis D'Orb. *An. Sci. Nat.* xvii. t. 12. f. 1. 5. 1842, *Paléont. univ.* t. 30., *Paléont. Franç.* t. 1. supp., *Moll. Viv. et Fos.* i. 444. t. 32.; *Desh. in Lamck. Hist.* 240.

1. CONOTEUTHIS DUPINIANUS.

Conoteuthis Dupinianus D'Orb. *An. Sci. Nat.* xvii. t. 12. f. 1. 5., *Paléont. univ.* t. 30., *Moll. Viv. et Fos.* i. 444. t. 32.

Fos. Paris Basin.

B. *Shell conical, thin, covered with a more or less thick externally deposited Coat.*

a. *Outer Coat thin, merely covering the Shell.*

2. BELEMNOTEUTHIS.

Animal elongate, subcylindrical. Fins lateral, rounded. Arms, sessile and peduncled, armed with two series of hooks (and round cups?).—*Shell* internal, conical, thin, elongate, subcylindrical; apex conical, chambered; septa concave, even edged. Siphon near the edge of the septa, the conical upper part covered ex-

ternally with a thin externally deposited coat, which becomes thinner above the apex; apex with two ridges on each side, those of one surface ("the dorsal," *Mantell*) parallel, and the other (ventral?) rather diverging above.

Belemnoteuthis Pearce, *Proc. Geol. Soc.* 1842, ii. 593., *Annal. Nat. Hist.* 1842, ix. 578.

Belemniteuthis Gray, *Proc. Zool. Soc.* 1847, 206.; *Cunnington*, *London Geol. Jour.* i. 1847, 98, 99. t. 15. 16.; *Mantell*, *Phil. Trans.* 1848, 173.

Belemnite (animal and phragmocone) *Owen*, *Phil. Trans.* 1844, 65.; *D'Orbigny*, *Moll. Viv. et Fos.* i. t. 28. from *Owen*.

Dr. *Mantell*, in his restoration of this genus (*Phil. Trans.* 1848, t. 14. f. 3, 4.), seems to have overlooked the fact that the upper part of the shell appears, as figured by Messrs. *Owen* and *Cunnington*, to be subcylindrical, like the upper part of the cone of the *Belemnites*.

1. BELEMNOTEUTHIS ANTIQUUS.

Belemnoteuthis Pearce, *Proc. Geol. Soc.* 1842, ii. 593., *Ann. Nat. Hist.* 1842.

Belemnoteuthis antiquus Cunningham, *Lond. Geol. Jour.* 98, 99. t. 15, 16.; *Mantell*, *Phil. Trans.* 1848, 175. t. 13. f. 2, 3. 5. t. 14. f. 1. ? 3, 4. t. 15. f. 5.

Belemnites Owenii (pars) *Pratt*, *MS.*; *Owen*, *Trans. Roy. Soc.* 1844, 83. t. 2, f. 6, 7, 8. (not t. 5.) t. 3. t. 4. f. 1. t. 5. t. 6. t. 7. f. 4.

Belemnosepia de Chippenham Chenu, *Leçon Elém. H. N.* 238. f. 760. 1847, from *Owen*.

Belemnites Puzosianus (pars) *D'Orb. Moll. Viv. et Fos.* i. 519. t. 28. from *Owen* (t. 29, 30. theoretical).

Fos. Oxford Clay, Wiltshire.

a. Fossil. The cone and the upper part of the shell with remains of animal. Wiltshire. From Mr. Rich's Collection.

b, c. The lower part of the shell only. Wiltshire.

b. Outer Coat produced, forming a subcylindrical external style.

3. ACTINOCAMAX.

Animal unknown. — *Cone* ————?; the externally deposited style with an elongated longitudinal fissure in the lower side of the conical cavity.

- Actinocamax* Müller, *Trans. Zool. Soc.* ii. 64. 1823; *Voltz, Belemn.* 35. 1830; *Blainv. Belemn.* 34. 1827.
Belemnitella D'Orb. *Bull. Soc. Géol.* 1841, *Paléont. univ.* 1846, *Moll. Viv. et Fos.* i. 447.
Act. inocamax (pars) *Voltz, Ann. Sci. Nat.* xiii. 354. 1840.
Belemnites Breyn. *Polyth.* 41. 1732; *Lamck. Syst. An. s. V.* 104. 1801, (*B. paxillosa*); *Montf. C. Syst.* 383. 1808.
Belemnites (pars) *Lamck. Hist.* 16.
Echinus (spine) *Beudant, Ann. Mus.* xvi. 1810.

1. ACTINOCAMAX VERUS.

Style elongate, lanceolate, smooth; trigonal in front; dilated, depressed, and mucronately acuminate behind; sides with a deep impressed groove, evanescent behind. Shell truncated, radiately ribbed, slit below.

- Actinocamax verus* Müller, *Trans. Géol. Soc.* ii. 64. t. 9. f. 17. 1823; *Voltz, Lehrb.* 1839, 522.
Belemnites fusiformis Young, *Geol. York*, 14. t. 14. f. 2. ? 1822.
B. plenus Blainv. *Belem.* 59. n. 1 1827, *Dict. Sci. Nat. f. 3.*; *Desh. Ency.* ii. 124.; *Bronn, Lethæa*, ii. t. 83. f. 14.; *Roemer, Kreid.* 34.
B. mucronatus (pars) *Sonn. Mem. Conch.* vi. 205. t. 600. f. 6, 7. 1829.
B. lanceolatus *Son. Mem. Conch.* v. 208. t. 600. f. 8, 9. 1829, not Schloth; *Fusch, Pol. Paléon.* 162.; *Morris, Cat.* 177.
Belemnitella vera D'Orb. *Bull. Géolog.* 1842, 359., *Paléont. univ.* t. 32. f. 1—6. 1846, *Moll. Viv. et Fos.* 447.
Actinocamax Blainvillei *Voltz, Belem.* 35. 1830.
Belemnitella Galliennei D'Orb. *Bull. Soc. Géol. F.* 1842; *Brey. Polyth.* 411. t. 7. f. 15. 1732.
Echinus spine *Beudant, Ann. Mus.* xvi. t. 3. f. 8, 9, 1810; *Park. Org. Rem.* iii. t. 4. f. 19. 1811.
Fos. Greensand.

a, b, c, d. Style only. Folkstone. Presented by J. E. Gray, Esq.

2. ACTINOCAMAX PAXILLOSA.

Style elongate, subconical, rugose, cylindrical, and slit in front, with ramulose flattened grooves on the sides, many-branched behind; mucronately acuminate behind. Shell raised; angle 19" or 20".

- Belemnites* Breyn. *Polyth.* 41. t. 7. f. 1—14.; *Klein, Tab. Mar.* 30. t. 7. f. 3, 4, 5.
Belemnites Faujas *St. Pierre*, 127. t. 32. f. 3.
Belemnites paxillosa *Lamck. Syst. A. s. V.* 104. 1801.

- B. paxillosus* *Montf. Conch. Syst.* i. 383. 1808; *Park. Org. Rem.* iii. 9. f. 1.; *Schloth. Tasch.* vii. 31. 70. 100, 101. (part).
- B. mucronatus* *Schloth. Tasch.* vii. 3. 1813, *Petref.* 47.; *Mantell, Fos. S. D.* t. 16. f. 1.; *Brong. et Cuv. Géol. Par.* t. 3. f. 1. a, b; *Nelson, Act. Holm.* 1825, 339., *Petref. Suec.* 9. t. 2. f. 1—4.; *Blainv. Belemn.* 7. t. 1. f. 12*.; *Sonn. Mem. Conch.* t. 600. f. 1, 2. 4.; *Desh. E. M.* ii. 125.; *Cuv. Règ. Ann. Ill.* t. 11. f. 3.
- B. cylindrus* *Wahlenb.* 1821.
- ? *B. coniformis* *Park. Org. Rem.* iii. 127. 132. t. 8. f. 10. 12. t. 9. f. 1. 1811.
- B. subconicus* *Lamck. Hist.* vii. 592. 1822 (part).
- B. fusoides* *Lamck. Hist.* vii. 1822.
- B. electrinus* *Miller, Belemn.* 61. t. 8. f. 2.
- B. Osterfieldi* *Blainv. Belemn.* 62. t. 1. f. 8.
- B. Allani* *Flem. B. A.* 240. 1828.
- B. americanus* *Morton, Amer. Jour.* xvii. 281. xviii. t. 1. f. 1. 3.; *Keferst.* 1834, 422.
- Belemnitella mucronata* *D'Orb. Paléont. Fran. Ter. Cret.* t. 7.; *Murchison, Russia*, 489. t. 43. f. 1—4., *Moll. Viv. et Fos.* i. 450. t. 33. f. 1—6.
- ? *Belemnites ambiguus* *Morton, Silliman, Jour.* xviii. t. 1. f. 4. cop.
- ? *Belemnitella ambigua* *D'Orb. Paléont. étrang.* t. 27. f. 13, 14., *Moll. Viv. et Fos.* i. 436. t. 33. f. 13, 14. from Morton.

Fos. Chalk.

- a, b. Style from chalk. Norwich. Presented by Mr. E. Gerrard.
- c, d. From chalk. Kent. Presented by J. E. Gray, Esq.

3. ACTINOCAMAX QUADRATA.

Shell subquadrate, short. Style elongate, subcylindrical, compressed and fissured in front, acuminate and mucronate behind; lateral groove broad, bifurcate, and branched behind.

- Belemnitus quadratus* *DeFrance Cabinet; Blainv. Belem.* 62. t. 1. f. 9. 1827; *D'Orb. Ter. Cret.* 160. t. 6. f. 5. 10.
- B. granulatus* *Blainv. Belemn.* 63. t. 1. f. 10. (not Zieten) 1827; *Sow. M. C.* vi. 207. t. 600. f. 3. 5.; *Desh. E. M.* ii. 135.; *Potiez et Mich. Gal. Moll.* i. 22.; *Roemer, Kreid.* 84.; *Morris, Cat.* 177.
- B. striatus* *Blainv. Belemn.* 64. t. 1. f. 11. (not Hartm.) 1827; *Desh. E. M.* ii. 135.
- Belemnitella quadrata* *D'Orb. Paléont. univ.* t. 34. f. 510., *Moll. Viv. et Fos.* i. 451.

Fos. White Chalk. France, England.

4. ACTINOCAMAX SUBVENTRICOSA.

Shell conical, concentrically rugose. Style elongate, subcylindrical, smooth; rather trigonal, compressed in front, depressed and mucronate at the tip behind; lateral grooves flattened, simple, evanescent behind.

Belemnites subventricosus *Wahlenb. Act. Upsal. viii. 80. 1821; Voltz, Belem. 64. t. 8. f. 1.*

B. mamillatus *Nelson, Act. Holm. 1825, 340., Petref. Suec. 10. t. 2. f. 2.; Hissing, Lethæa Suec. 31. t. 10. f. 7.; Roemer, Kreid. 84.*

B. Scaniæ *Blainv. Belemn. 61. 1827, Dict. Sci. Nat. f. 6.; Desh. E. M. ii. 124.*

Belemnitella subventricosa *D'Orb. Paléont. univ. t. 31. f. 7. 12., Moll. Viv. et Fos. i. 454. t. 33. f. 7. 12.*

Fos. Chalk. Sweden.

4. BELEMNITES.

Shell conical? ———. The externally deposited *style* with an entire margin to the edge of the conical cavity (which covered the shelly cone).

Belemnites *Lister, 1678; D'Orb. An. Sci. Nat. xvii. 1842, Paléont. Ter. Jur. 1842, Moll. Viv. et Fos. i. 459.*

Belemnita *Fleming, Brit. Anim. 1828.*

Belemnites (pars) *Ehrhart, Bel. Suec. 1727; Lamck. Hist. (not Syst. 1801).*

Nautilus *Belemnita* *Gmelin.*

Histolithis *Montf. Conch. Syst. i. 387. t. 97.*

Acamas *Montf. Conch. Syst. i. 1808.*

Achelois *Montf. Conch. Syst. i. 1808.*

Callirhoe *Montf. Conch. Syst. i. 1808.*

Celocis *Montf. Conch. Syst. i. 1808.*

Chrysaor *Montf. Conch. Syst. i. 1808.*

Hibolithes *Montf. Conch. Syst. i. 1808.*

Paclites *Montf. Conch. Syst. i. 1808.*

Poradragus *Montf. Conch. Syst. i. 1808.*

Thalamus *Montf. Conch. Syst. i. 1808.*

? *Platinites* *Rafin.*

Actinocamax (pars) *Voltz, Ann. Sci. Nat. xiii. 354. 1840, not Müller; Philips, Hartmann.*

? *Pseudobelus* *Blainv. Belemn. 113.*

Notosiphites and *Gasterosiphites* *Duval.*

Ocelli, *Notocelli*, and *Gastrocelli* *D'Orb. Paléont. univ., Moll. Viv. et Fos.*

Teudopsis sp. *Deslongchamps, Mém. des Soc. Norm. v. 72. 1838.*

Belemnosepia (pars) *Buckland, Geol. et Min.* i. 371. ii. 68. t. 44. f. 1. 7, 12.

Dr. Buckland gives a theoretical figure of the animal of this genus, which appears most consistent with the specimens I have examined (see *Geol. and Mineralogy with Nat. Theology*, ii. 70. t. 44. f. 1. 1836); and figures a *Belemnites*, with the upper part of the shell preserved (l. c. ii. t. 4. f. 7, 8, 9, 10, 11, 12. 1836).

Dr. Mantell (*Phil. Trans.* 1848, t. 15. f. 2. 3.) has figured a specimen which appears to have an elongated process on each side, like the processes on the side of the mouth of certain *Ammonites*; but, on examining the specimen, I am very doubtful if this appearance does not arise from an accidental fracture of the upper part of the conical sheath.

M. D'Orbigny describes the shell of this genus as horny, enlarged in front into a spathuliform dorsal plate, contracted behind, with a conical cavity furnished with concave septa, having a siphon on the ventral edge traversing all the cells, and coated externally with a shelly beak. The theoretical form of the bone is represented by M. D'Orbigny in *Ann. Sci. Nat.* 1842, t. , *Paléont. Franç. Ter. Juras.* t. 2. f. 1, 2. t. 3. f. 1, 2, 3. t. 4. f. 1., *Moll. Viv. et Fos.* i. t. 35, 36. The authority for this dorsal expansion appears to rest on certain lines seen on the outside of the cone of *Belemnites giganteus* var. *aalensis*, which, he thinks, resemble the grooves found on the dorsal surface of the bone of the cuttle-fish, *Sepia* or *Loligo*, and hence he believes they have a similar enlarged dorsal plate. This may be the case with some species, though, I believe, no specimens have been found to establish this theory, and the external surface of the conical part of other *Belemnites* shows no indication of any such grooves; but this may arise from two or more distinct forms being confounded in the present genus *Belemnites*.

Synopsis of the Sections of the Genus.

* Without any dorsal or ventral Groove.—*Acæli*.

† Lateral Lines none.—*Acuarii*.

†† Lateral Lines two on each Side.—*Clavati*.

** Ventral Groove distinct.—*Gastrocæli D'Orb.*, *Notosiphites Duval*.

† Lateral Lines none.—*Canaliculati*.

†† Lateral Lines two on each Side.—*Hastati*.

3* Dorsal Groove distinct.—*Notocæli D'Orb.*, *Gastrosiphites Duval*.

† Lateral Lines two on each Side.—*Dilatati*.

Professor Bronn, in forming this table, has, by mistake, transposed the position of the grooves (see *Gesch. der Naturg.* iii. 150.).

* *Without any dorsal or ventral Groove.*—Acæli Bronn, *Gesch. Nat.* iii. 150.

† *Style more or less conical, sometimes grooved or ridged at the lower Extremity, but without any lateral Grooves in Front.*—Acuarii D'Orb. *Ter. Jur.* i. 73., *Moll. Viv. et Fos.* i. 480.; Bronn, l. c. 150.

1. BELEMNITES NIGER.

Shell elongate, subcylindrical, subquadrate, posteriorly acuminate, above bisulcate, anteriorly dilated; aperture somewhat square-shaped; alveolus 20° .

Belemnites niger Lister, *Conch. Angl.* t. 7. 31. 226. ? 1678; D'Orb. *Paléont. univ.* t. 39. t. 40. f. 1—5., *Moll. Viv. et Fos.* i. 483., *Belemn.* n. 2.

Belemnites coniformis Parkinson, *Organ. Rem.* iii. 127. t. 8. f. 11. 12. 15. ? 1811.

Belemnites paxillosus Schlotheim, *Taschenb.* vii. 51. 70. 1813 (not Montf. 1808); Schloth. *Petref.* 46. n. 3.; Blainville, *Belemnites*, 101. n. 43.; Voltz, *Belemn.* 50. t. 6. f. 2. t. 7. f. 2.; Zieten, *Wurt.* 29. t. 23. f. 1.; Hartmann, *Wurt.* 17. n. 1.; Keferst. *Dict. Nat.* 427. n. 68.; Roemer, *Ool.* 171. n. 17.; Pusch, *Pölers. Paléont.* 162. n. 5.; Morris, *Brit. Fos.* 177.

Belemnites vulgaris Young, *Geol. Surv. of Yorksh.* 256. t. 14. f. 1, 2. 1822.

Belemnites apicicurvatus Blainv. *Belemn.* 76. n. 16. t. 2. f. 6. 1827; Zieten, *Wurt.* 30. t. 23. f. 4.; Keferst. *Dict. Nat.* 424. n. 14. (1834).

Belemnites apicicurvus Hartmann, *Wurt.* 15. n. 1. 1830.

Belemnites bisulcatus Blainv. *Belemn.* 79. n. 19. t. 2. f. 7. 1827, *Dict.* t. f. 6, 7.; Hartmann, Zieten, *Wurt.* 31. t. 24. f. 2. p. 16. n. 1.; Desh. *Encycl.* ii. 128. n. 12.; Keferst. *Dict. Nat.* 424. n. 19, 20.; Roemer, *Nord. Ool.* 171. n. 18.

Belemnites Crassus Voltz, *Belemn.* 53. n. 10. t. 7. f. 2. 1830; Zieten, *Wurt.* t. 22. f. 1.; Keferst. *Dict. Nat.* 425. n. 31.; Roemer, *Ool.* 174.; Potiez et Mich. *Gal.* i. 22. n. 4.

Belemnites subaduncatus Zieten, *Wurt.* 27. t. 21. f. 4. 1830 (not Voltz); Voltz, *Belemn.* 48. n. 8. t. 3. f. 2. 1830; Keferst. *Dict. Nat.* 428. n. 91.

Belemnites subaduncus Roemer, *Ool.* 170. n. 15. 1835.

Belemnites teres Sthal. Zieten, *Wurt.* 28. t. 21. f. 8. deformed, 1830; Hehl. Zieten, t. 21. f. 2. ? deformed.

- Belemnites carinatus* *Hehl. Zieten, Wurt.* 27. t. 21. f. 6. 1830; *Keferst. Dict. Nat.* 425. n. 27.
- Belemnites papillatus* *Pheninger, Zieten,* 30. t. 23. f. 7. 1830; *Keferst.* 427. n. 69.; *Roemer, Ool.* 169.
- Belemnites subpapillatus* *Zieten, Wurt.* 30. t. 23. f. 8. ? 1830; *Keferst.* 428. n. 95.; *Roemer, Ool.* 169.
- Belemnites quadrisulcatus* *Hartmann, Ziet.* 31. t. 24. f. 4. ? 1830; *Keferst.* 427. n. 78.; *Roemer, Ool.* 175.
- Belemnites affinis* *Munster, zur Belemn.* 14. t. 2. f. 1. 3. 1830 (not Raspail, 1829); *Keferst.* 424. n. 9.
- Belemnites lævigatus* *Zieten, Wurt.* 282. t. 21. f. 12. ? 1830; *Keferst.* 426. n. 53.; *Roemer, Ool.* 169.
- Belemnites turgidus* *Schub. Zieten, Wurt.* 28. t. 22. f. 1. 1830.
- Belemnites striatulus* *Roemer, Nord. Ool.* 165. n. 3. ? 1836.
- Belemnites impressus* *Roemer, Ool.* 170. n. 16. t. 16. f. 5. 1836.
- Belemnites Bruguièranus* *D'Orb. Paléont. Franç. Terr. Jur. i.* 84. t. 6. t. 7. f. 15. 1842.

Hab. Middle Lias.

2. BELEMNITES IRREGULARIS.

Shell (young) short, compressed, posteriorly obtuse, somewhat sharp-pointed; (adult) very long, compressed, rather conical, posteriorly attenuate, rather obtuse, longitudinally striately grooved; aperture compressed; alveolus at an angle of 20° to 22°.

- Belemnites irregularis* *Schloth. Min. Tasch.* vii. 70. t. 3. f. 2. 1813, *Die Petref.* 48. n. 5.; *Blainv. Belemn.* 104. n. 46., *Zieten, Wurt.* 30. t. 23. f. 6.; *Hartmann, Wurt.* 16.; *Keferst. Dict. Nat.* 426. n. 52.; *D'Orb. Paléont. Franç. Terr. Jur. i.* 76. t. 5. and 74. t. 4. f. 2—8., *Paléont. univ.* 44. t. 43. f. 9—11., *Moll. Viv. et Fos. i.* 496. n. 13.
- Belemnites acuarius* *Schloth. Petref.* 46. n. 2. 1820; *Blainv. Belemn.* 96. n. 36.; *Munster, Belemn.* 15. t. 2. f. 5, 6.; *Hartmann, Wurt.* 15.; *Keferst.* 424. n. 4.; *Roemer, Ool.* 174.; *D'Orb. Paléont. Franç. Terr. Jur. i.* 74. t. 7.
- Belemnites penicillatus* *Schloth. Petref.* n. 10. 1820; *Blainv. Belemn.* 89. n. 29. t. 3. f. 7.; *Sow. Min. Conch.* vi. 181. t. 590. f. 5, 6. ?; *Desh. Encycl.* ii. 131. n. 21.; *Hartmann, Wurt.* 17.; *Keferst.* 427. n. 70.
- Belemnites tubularis* *Young, Geol. Surv. Yorksh.* t. 14. f. 6. 1822; *Phillips, Geol. Yorksh.* t. 12. f. 20.; *Morris, Brit. Foss.* 178.
- Belemnites digitalis* *Blainv. Belemn.* 88. n. 28. t. 3. f. 5, 6. 1827; *Voltz, Belemn.* 45. n. 7. t. 2. f. 5.; *Zieten, Wurt.* 31. t. 23. f. 9.; *Hartmann, Wurt.* 16.; *Keferst.* 425. n. 35.; *Roemer, Ool.* 167 n. 8.

Pseudobelus striatus *Blainv. Belemn.* 113. t. 4. f. 13. 1827? (not Defr.)

Belemnites striatus *Keferst.* 428. n. 90. 1834.

Pseudobelus lævis *Blainv. Belemn.* 112. t. 4. f. 14. ? 1827.

Belemnites lævis *Roemer, Ool.* 115. n. 4. ? 1836.

Belemnites gracilis *Hell. Zieten, Wurt.* 28. t. 22. f. 2. 1830 (not Raspail, 1829, nor Phillips); *Keferst.* 426. n. 46.; *Roemer, Ool.* 175.

Belemnites lagenæformis *Hartmann, Zieten, Wurt.* 33. t. 25. f. 1. 1830; *Keferst.* 426. n. 54.

Belemnites pygmæus *Zieten, Wurt.* 28. t. . f. 9. ? 1830; *Keferst.* 427. n. 77.

Belemnites rostratus *Zieten, Wurt.* 30. t. 23. f. 5. 1830 (not rostratus Raspail, 1829); *Keferst.* 427. n. 83.; *Roemer, Ool.* 175.

Belemnites longisulcatus *Voltz, Mem.* 57. t. 6. f. 1. 1830; *Keferst.* 426. n. 58; *Roemer, Ool.* 174.

Belemnites tenuis *Munst. Belemn.* t. 22. f. 5. 6. 1830; *Hartmann, Wurt.* 17.; *Keferst.* 428. n. 99.; *Roemer, Ool.* 169. n. 13.

Belemnites semistriatus *Munst. Belemn.* t. 2. f. 4. 1830; *Keferst.* 428. n. 88.

Hab. Upper Lias.

3. BELEMNITES TRIPARTITUS.

Shell (young) elongate, slender, compressed, posteriorly attenuately acute, beneath one-grooved; aperture compressed; (adult) shell conical, compressed, posteriorly acuminate, three-grooved, anteriorly dilated; aperture oval, compressed; alveolus at an angle of 22° to 25°.

Belemnites tripartitus *Schloth. Petref.* 48. n. 6. 1820; *Miller, Trans. Geol. Soc.* 1823, 66. t. 8. f. 10—13. (the extremity); *Blainville, Belemn.* 82. n. 21. t. 4. f. 4.; *Hartmann, Wurt.* 17.; *Keferst. Dict. Nat.* 428. n. 104.; *Roemer, Ool.* .; *D'Orb. Paléont. univ.* t. 45. f. 46., *Terr. Jur. Supp.* t. 2., *Moll. Viv. et Fos.* i. 501., *Belemn.* n. 14.

Belemnites elongatus *Miller, Trans. Geol. Soc.* t. 7. f. 6, 7. (1823); *Blainv. Belemn.* 95. n. 34. t. 4. f. 6.; *Sow. Min. Conch.* vi. 178.; *Zieten, Wurt.* 28. t. 22. f. 6.; *Hartmann, Wurt.* 16.; *Keferst.* 435. n. 39.; *Roemer, Ool.* 169.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 90. n. 8. t. 8. f. 6—11.; *Matheson, Catal.* 258. n. 277.; *Morris, Brit. Fos.* 177.

Belemnites aduncatus *Miller, t. 8. f. 6. deformed, 1823; Blainv. Belemn.* 77. n. 17. t. 2. f. 6. t. 8. f. 6—11.; *Keferst.* 424. n. 8.

Belemnites trisulcatus *Blainv. Belemn.* 83. n. 22. t. 5. f. 13. the extremity, 1827; *Hartmann, Zieten, t. 24. f. 3., Wurt.* 17.; *Keferst.* 428. n. 105.; *Roemer, Ool.* 172. n. 20.

- Belemnites ovatus* *Blainv. Belemn.* 88. n. 27. t. 3. f. 4. ? 1827 ; *Desh. Encyc. Méth.* ii. 130. n. 20.
- Belemnites unisulcatus* *Blainv. Belemn.* 81. t. 5. f. 21. young, 1827 ; *Desh. Encyc.* ii. 129. n. 13. ; *Hartman, Zieten, Wurt.* 31. t. 24. f. 1., *Wurt.* 17. ; *Keferst.* 429. n. 112. ; *D'Orb. Paléont. Franç.* i. 88. n. 7. t. 8. f. 1—5.
- Belemnites compressus* *Phillips, Geol. Yorksh.* t. 12. f. 21. ? 1829 ; *Voltz, Belemn.* 53. t. 11. f. n. 2. ; *Roemer, Ool.* 171. n. 19. ; *D'Orb. Paléont. Franç. Terr. Jur.* t. 6. f. 3—8. ; *Matheson, Catal.* 258. n. 278.
- Belemnites trifidus* *Voltz, Belemn.* 62. n. 15. t. 7. f. 3. 1830 ; *Keferst.* 428. n. 403. ; *Morris, Brit. Fos.* 177.
- Belemnites oxyconus* *Hel. Zieten. Wurt.* 27. t. 21. f. 5. 1830 ; *Keferst.* 427. n. 67. ; *Roemer, Ool.* 175.
- Belemnites subula* *Desh. Encyc. Méth.* ii. 130. n. 17. 1830.
- Belemnites ornithocephalus* *Theodori, Roemer, Ool. Nord.* 169. n. 14. 1836.
- Plott, Philos. Trans.* xii. t. 3. f. 8. 1764.

Hab. Upper Lias.

4. BELEMNITES UMBILICATUS.

- Shell elongate, subcylindrical, beneath depressed, posteriorly acuminate, subumbilicated, anteriorly somewhat dilated ; aperture roundish ; alveolus 19° .
- Belemnites umbilicatus* *Blainv. Belemn.* 97. n. 37. t. 3. f. 11. 1827 ; *Desh. Encycl.* 132. n. 23. (1830) ; *Hartmann, Wurt.* 17. n. 1. 1839 ; *Keferst. Dict. Nat.* 429. n. 109. ; *D'Orb. Paléont. Franç. Terr. Jur.* i. 86. t. 7. f. 6—11., *Moll. Viv. et Fos.* i. 486. *Belemn.* n. 3.
- Belemnites clavatus* *Blainv. Belemn.* t. 3. f. 12. f. b. c. 1827.
- Belemnites subdepressus* *Voltz, Mem.* 40. t. 2. f. 1. n. 5. t. 7. f. 4, 5. 1830 ; *Keferst. Dict. Nat.* 428. n. 93. ; *Roemer, Ool.* 166. n. 7.
- Belemnites perforatus* *Voltz, Belemn.* 63. n. 16. t. 8. f. 2. ? 1830 ; *Keferst. Dict. Nat.* 427. n. 71.
- Belemnites ventroplanus* *Voltz, Belemn.* 40. n. 4. t. 1. f. 10. 1830 ; *Keferst. Dict. Nat.* 429. n. 113. ; *Roemer, Ool.* 168. n. 10.
- Belemnites subclavatus* *Zieten, Wurt.* 29. t. 22. f. 5. 1830 ; *Sthal. Wurt.* 19. ; *Keferst.* 428. n. 92. ; *Roemer, Ool.* 167. n. 9.
- Hab.* Middle Lias.

5. BELEMNITES LONGISSIMUS.

- Shell very elongate, slender, compressed, anteriorly dilated, posteriorly obtusely acuminate, with one longitudinal rib on the sides ; aperture compressed.

Belemnites longissimus *Miller*, *Trans. Geol. Soc.* ii. 60. t. 8. f. 1, 2, 1823; *Blainv. Belemn.* 95. n. 35. t. 4. f. 7.; *Zieten, Wurt.* 28. t. 21. f. 10, 11.; *Keferst. Dict. Nat.* 426. n. 60.; *Roemer, Ool.* 168.; *Morris, Brit. Fos.* 177.; *D'Orb. Paléont. Franç. Terr. Jur. Suppl.* t. 1. f. 1—7., *Paléont. univ.* t. 43. f. 1—7., *Moll. Viv. et Fos.* i. 490., *Belemn.* n. 6.

Belemnites cylindricus *Blainv. Belemn.* 94. n. 33. t. 3. f. 10. 1827; *Desh. Encycl.* ii. 131. n. 22.; *Hartmann, Wurt.* 16.; *Keferst. Dict. Nat.* 425. n. 33.

Hab. Middle Lias.

6. BELEMNITES BREVIS.

Shell short, inflated, rather compressed, posteriorly acuminate pointed, anteriorly dilated; aperture square or compressed; alveolus oblique, at an angle of 28° .

Belemnites brevis *Blainv. Belemn.* 86. n. 26. t. 3. f. 2. (exclus. f. 1.) 1827; *Desh. Encycl.* ii. 131. n. 19.; *Hartmann, Wurt.* 16. n. 1.; *Keferst. Dict. Nat.* 425. n. 24.; *Galeotti, Brab.* 166. n. 13.; *D'Orb. Paléont. univ.* t. 38. f. 1—7., *Moll. Viv. et Fos.* i. 491., *Belemn.* n. 7.

Belemnites abbreviatus *Sow. Min. Conch.* vi. 178. t. 590. f. 9. (exclus. f. 2, 3.) 1828, not *Miller*; *D'Orb. Paléont. Franç. Terr. Jur.* i. 92. n. 9. t. 9. f. 1—7; *Bronn, Fos. Conch.* 21. t. 2. f. 41, 42.

Belemnites breviformis *Voltz, Mem.* 43. n. 6. t. 2. f. 2, 3, 4. 1830; *Munster, Zieten, Wurt.* 27. t. 21. f. 7.; *Keferst. Dict. Nat.* 425. n. 25.; *Roemer, Ool.* 164. n. 1. t. 16. f. 8.; *Morris, Brit. Fos.* 177.

Belemnites pyramidatus *Schub. Zieten*, 29. t. 22. f. 9. ? 1830; *Keferst.* 427. n. 76.

B. pyramidalis *Roemer, Ool.* 169. 172. n. 21.

Belemnites incurvatus *Keferst.* 426. n. 51. 1834.

Belemnites conulus *Munster, Roemer, Nord. Ool.* 165. n. 2.

Belemnites acutus *Potiez & Mich.* 21. n. 1. 1838.

Hab. Upper Lias.

7. BELEMNITES ACUTUS.

Shell short, conical, rather compressed, posteriorly acuminate; aperture oval; alveolar cavity from 18° to 20° .

Belemnites acutus *Miller, Trans. of Geol. Soc.* ii. t. 8. f. 9. 1823 (not *Blainville*, 1827); *Sowerby, Min. Conch.* vi. 178. t. 590. f. 7, 8. 10.; *D'Orb.* 1842, *Paléont. Franç. Ter. Jur.* i. 94. n. 10. t. 9. f. 8—14., *Paléont. univ.* t. 38. f. 8—14., *Moll. Viv. et Fos.* t. 36. f. 1—3.; *Morris*, 1843, *Brit. Fos.* 177.

B. brevis *Blainv. Belemn.* 86. n. 26. t. 3. f. 1. exclus. f. 2, 3. 1827.
B. pyramidalis *Munster, Zieten, Wurt.* t. 24. f. 5. ?; *Lind.* 1830.
 1699, t. 25. f. 1583. ?

Hab. Superior Lias. France and England.

8. BELEMNITES CURTUS.

Shell short, conical, compressed, obtuse at apex, two-grooved; aperture triangular; alveolus with an angle of 28° .

Belemnites brevirostris *D'Orb. Paléont. Franç. Terr. Jur.* i. 96. n. 11. t. 10. f. 1—6. 1842 (not *brevirostris Raspail*, 1829).

Belemnites curvus *D'Orb. Paléont. univ.* t. 42. f. 1—6. 1846, *Moll. Viv. et Fos.* i. 495. *Belemn.* n. 11.

Hab. Middle Lias.

9. BELEMNITES FOURNELIANUS.

Shell short, compressed, posteriorly obtuse, laterally impressed; aperture compressed, oblong; alveolus at an angle of 17° .

Belemnites Fournelianus *D'Orb. Paléont. Franç. Terr. Jur.* i. 98. n. 12. t. 10. f. 7. 14., *Paléont. univ.* t. 42. f. 7. 14., *Moll. Viv. et Fos.* i. 489., *Belemn.* n. 5.

Hab. Middle Lias.

10. BELEMNITES NODOTIANUS.

Shell oblong, compressed, anteriorly dilated, posteriorly obtusely mucronate, beneath grooved; aperture compressly square; alveolus 25° .

Belemnites incurvatus *Zieten, Wurtemb.* 29. t. 22. f. 7. 1830 (not *incurvatus Raspail*, 1829); *Keferst. Dict. Nat.* 426. n. 51.; *Roemer, Ool.* 174.

Belemnites nodotianus *D'Orb. Paléont. Franç. Terr. Jur.* i. 98. n. 13. t. 10. f. 15. 20. 1842, *Paléont. univ.* t. 42. f. 15. 20., *Moll. Viv. et Fos.* i. 495., *Belemn.* n. 12.

Hab. Upper Lias.

Fossils in Lower Oolite.

11. BELEMNITES GIGANTEUS.

Shell elongate, compressed, acuminate or somewhat inflated, posteriorly acuminate, laterally grooved, anteriorly dilated; aperture oval; alveolus at angle of from 20° to 23° .

Klein, Descript. Tab. t. 9. f. 314. 1731; *Borguet, Trait. des Petrif.* t. 45. f. 576. 1742; *Knorr, Mon.* iii. iv. 354.; *Parkinson, Org. Rem.* iii. 126—128. t. 8. f. 8.

- Belemnites giganteus* *Schloth. Min. Taschenb.* vii. 70. 1813, *Petref.* 45. n. 1. 1820; *Hartmann, Wurt.* 16.; *Keferst. Dict. Nat.* 426. n. 46.; *Roemer, Ool.* 174.; *D'Orb. Paléont. Franc. Terr. Jur.* i. 112. t. 14, 15., *Paléont. univ.* t. 47, 48., *Moll. Viv. et Fos.* i. 504., *Belemn.* n. 15. (t. 35, 36. theoretical restoration).
- Belemnites ellipticus* *Miller, Trans. Geol. Soc.* ii. t. 8. f. 14-17. 1823; *Blainv. Belemn.* 102. n. 44.; *Keferst.* 425. n. 38.; *Roemer, Ool.* 174.; *Morris, Brit. Fos.* 177.
- Belemnites abbreviatus* *Miller, Trans. Geol. Soc.* 59. t. 8. f. 9, 10. young, 1823; *Blainv. Belemn.* 91. n. 31. t. 4. f. 5.; *Sow. Min. Conch.* vi. 179. t. 590. f. 2, 3. (exclus. f. 9.); *Keferst.* 424. n. 2.
- Belemnites compressus* *Blainv. Belemn.* 84. n. 24. t. 9. 1827; *Sow. Min. Conch.* vi. 692. t. 590. f. 4.; *Desh. Encyc.* ii. 129. n. 15.; *Zieten, Wurt.* 26. t. 20. f. 2.; *Hartmann, Wurt.* 16.; *Keferst.* 426. n. 29.
- Belemnites quinesulcatus* *Blainv. Belemn.* 83. n. 22. t. 2. f. 8. young female, 1827; *Phillips, Geol. Yorksh.* t. 9. f. 35.; *Zieten, Wurt.* 26. t. 20. f. 3.; *Hartm. Wurt.* 17.; *Keferst.* 427. n. 81.; *Roemer, Ool.* 173. n. 22.; *Morris, Brit. Fos.* 177.
- Belemnites gladius* *Blainv. Belemn.* 86. n. 25. t. 2. f. 10., *Dict. Sc. Nat.* f. 10. 1827; *Desh. Encyc.* ii. 136. n. 18. 1830; *Keferst.* 426. n. 84.; *Roemer, Ool.* 174.
- Belemnites gigas* *Blainv. Belemn.* 91. n. 32. t. 5. f. 20. (exclus. t. 3. f. 9.) 1827.
- Belemnites aalensis* *Voltz, Mem.* 60. t. 4. and 7. i. f. 7. 1830; *Zieten, Wurt.* 25. t. 24. f. 6.; *Keferst. Dict. Nat.* 423. n. 1.; *Roemer, 174. n. 24.*; *Morris, Brit. Fos.* 177.
- Belemnites longus* *Voltz, Mem.* 58. n. 13. t. 3. f. 1. 1830; *Keferst.* 426. n. 59.; *Roemer, Ool.* 174.
- Belemnites grandis* *Schubl. Zieten, Wurt.* 26. t. 20. f. 1. 1830; *Keferst.* 426. n. 48.; *Roemer, Ool.* 174.
- Belemnites acuminatus* *Schubl. Zieten, Wurt.* t. 26.? t. 20. f. 5. 1830; *Keferst.* 424. n. 5.; *Roemer, Ool.* 175.
- Belemnites bipartitus* *Hartmann, Zieten, Wurt.* 32.? t. 14. f. 7. 1830 (not *Blainv.* 1827); *Hartm. Wurt.* 16.; *Keferst.* 424. n. 18.
- Belemnites bicanaliculatus* *Hartm. Zieten, Wurt.* 32.? t. 24. f. 9. 1830 (not *Blainv.* 1827), *Hartm. Wurt.* 15.; *Keferst.* 424. n. 17.
- Belemnites quinquecanaliculatus* *Hartm. Zieten, Wurt.* 32.? t. 24. f. 12. 1830; *Keferst.* 427. n. 81.
- Belemnites Milleri* *Desh. Encyc.* ii. 129. 1830.
- Belemnites anomalus* *Roemer, Ool.* 173. n. 23.? 1836.
- Hab.* Lower Oolite.

Fossils in Oxford Clay.

12. BELEMNITES EXCENTRALIS.

Shell short, inflated, laterally impressed, rather square-shaped, posteriorly sharply curved, anteriorly dilated; aperture somewhat square; alveolus at an angle of 19° .

Belemnites excentralis Young, *Geol. Yorksh.* t. 14. f. 4, 5. 1822; *D'Orb. Paléont. univ.* t. 57., *Moll. Viv. et Fos.* i. 520. n. 25.

Belemnites excentricus Blainv. *Belemn.* 90. n. 30. t. 3. f. 8. 1827; *Keferst. Dict. Nat.* 425. n. 40.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 120. n. 26. t. 17.

Belemnites abbreviatus Morris, *Brit. Fos.* 127. (in part) 1843.

Belemnites inæqualis Roemer, *Ool.* 166. n. 5. t. 12. f. 1. 1836.

Belemnites lævis Roemer, *Ool.* 165. n. 1.

Hab. Lower, Middle, and Upper Oxford Clay.

13. BELEMNITES PUZOZIANUS.

Shell elongate, cylindrical, compressed, posteriorly straightly acuminate, beneath rather compressly grooved; aperture compressed, rather square; alveolus at an angle of $16\frac{1}{2}^{\circ}$.

Belemnites Puzozianus (pars) *D'Orb. Paléont. Franç. Terr. Jur.* i. 118. t. 16. f. 1—6. 1842, *Paléont. univ.* t. 50. f. 9. t. 55. f. 1—6. t. 56., *Paléont. étrang.* t. 31., *Paleont. Franç. Terr. Jur. Supp.* t. 3. f. 9., *Moll. Viv. et Fos.* i. 519.

Belemnites Owenii Pratt, Owen, *Phil. Trans.* 1844, t. 2. f. 1—4. (not animal and phragmacone).

B. attenuatus Mantell, *Phil. Trans.* 1848, t. 15. f. 2, 3.

Hab. Lower and Middle Oxford Clay.

a, b. Fossil large, with part of the cone of the shell. Oxford Clay, Wiltshire.

c, d. Small, with part of the cone of the shell. Oxford Clay, Wiltshire.

e. Style only. Oxford Clay, Wiltshire.

14. BELEMNITES MAGNIFICUS.

Shell elongate, cylindrical, depressed, acuminate; beneath flat, posteriorly narrowly channeled; aperture rather square; alveolus $27\frac{1}{2}^{\circ}$.

Belemnites magnificus *D'Orb. Murch. Vern. and Keys. Russia*, ii. 425. n. 7. 1846; *D'Orb. Paléont. univ.* t. 59. f. 4—8., *Paléont. étrang.* t. 33. f. 4—8., *Moll. Viv. et Fos.* i. 524., *Belemn.* n. 28.

Hab. Lower Oxford Clay.

15. BELEMNITES PANDERIANUS.

Shell short, rather conical, laterally compressed; posteriorly beneath impressed, acuminate; aperture compressed; alveolus 22° .

Belemnites aalensis Fischer, *Oryct. Genv. Moscow*, 173. t. 49. f. 1. ? 1837 (not Voltz).

Belemnites excentricus Fischer, *Revue des Fos. de Mosc.* n. 5. ? 1843 (not Blainv.).

Belemnites Panderianus D'Orb. *Murch. and Vern. Russia*, 423. n. 6. t. 30. 1844, *Paléont. univ.* t. 61., *Paléont. étrang.* 35., *Moll. Viv. et Fos.* i. 527., *Belemn.* n. 30.

Hab. Oxford Clay. Banks of the Volga.

16. BELEMNITES RUSSIENSIS.

Shell dilated, depressly conical, posteriorly longitudinally sulcated, groove short, disappearing; aperture depressed; alveolus at an angle of 20 degrees.

Belemnites Russiensis D'Orb. *Murch. Vern. and Keys. Russia*, ii. 422. n. 4. t. 29. f. 10—16. 1844; *D'Orb. Paléont. univ.* t. 62. f. 1—6., *Paléont. étrang.* t. 36. f. 1—7., *Moll. Viv. et Fos.* i. 529. n. 31.

Hab. Oxford Clay, Russia. Rare.

17. BELEMNITES KIRGHISENSIS.

Shell elongately conical, somewhat square, beneath depressed, posteriorly longitudinally grooved; groove short, disappearing; aperture square; alveolus with an angle of 20 degrees.

Belemnites Kirghiensis D'Orb. *Murch. Vern. and Keys. Russia*, ii. 423. n. 5. t. 29. f. 17—21. 1844; *D'Orb. Paléont. univ.* t. 62. f. 8—11., *Paléont. étrang.* t. 36. f. 8—11., *Moll. Viv. et Fos.* i. 529. n. 32.

Hab. Russia. Very rare.

18. BELEMNITES BOREALIS.

Shell elongate, rather spindle-shaped, anteriorly and posteriorly oval, compressed, impressed on the sides; aperture oval.

Belemnites borealis D'Orb. *Murch. Vern. and Keys. Russia*, ii. 420. n. 2. t. 28. f. 15—22. 1844; *D'Orb. Paléont. univ.* t. 62. f. 12—18., *Paléont. étrang.* t. 36. f. 12—18., *Moll. Viv. et Fos.* i. 530. n. 33.

Hab. Oxford Clay. Banks of the Volga.

Fossils in Kimmeridge Clay.

19. BELEMNITES SONICHII.

Shell elongate, somewhat lanceolate, depressed, posteriorly acuminate, beneath flattened; aperture depressed, rather triangular; alveolus ———?

Belemnites Sonichii *D'Orb. Paléont. Franç. Terr. Jur.* i. 133. n. 34. t. 22. f. 4—8., *Paléont. univ.* t. 64. f. 4—8., *Moll. Viv. et Fos.* i. 536. n. 39.

Hab. Portland Oolite.

Fossils in Greensand.

20. BELEMNITES SUBQUADRATUS.

Shell elongate, subcylindrical, smooth, anteriorly rather square, posteriorly rather depressed, inferiorly flatly depressed, apex somewhat acute.

Belemnites subquadratus *Roemer, Nord. Ool.* 166. t. 16. f. 6. 1836, *Nord. Kreidegeb.* 83. n. 1.; *Geinitz, Charak.* 68., *Charak. Kreid.* 68.; *D'Orb. Paléont. univ.* t. 71. f. 1—4., *Terr. Cret. Sup.* t. 6. f. 1—4., *Moll. Viv. et Fos.* i. 543. n. 45.

Belemnites Cornelianus *D'Orb. Terr. Cret.* i. 618. 1842.

Hab. (Etage Néocomien.)

†† *Style elongate, often clubbed, and with lateral Grooves.*—Fossils in Lias. *Clavati* *D'Orb. Moll. Viv. et Fos.* i. 481.; *Bronn,* l. c. 150.

21. BELEMNITES CLAVATUS.

Shell very elongate, club-shaped, anteriorly dilated, slender in the middle, posteriorly inflated, rather mucronate, laterally bisulcate; aperture compressed; alveolus ———?

Belemnites clavatus *Blainv. Belemn.* 97. n. 38. t. 3. f. 12. a. b. *Exclus.* f. c. 1827; *Desh. Encycl.* 130. n. 24. 1830; *Hartmann, Wurt.* 16. n. 1.; *Keferst. Dict. Nat.* 425. n. 28.; *Roemer, Ool.* 168. n. 10.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 103. t. 11. f. 10—20., *Paléont. univ.* t. 41. f. 19—23., *Moll. Viv. et Fos.* i. 487., *Belemn.* n. 4. t. 34. f. 4; 5.

Belemnites pistilliformis *Sow. Min. Conch.* 177. t. 589. f. 3. 1828; *Hartmann, Wurt.* 17. n. 1.; *Keferst. Dict. Nat.* 427. n. 69.; *Roemer, Ool.* 168. n. 11.; *Morris, Brit. Fos.* 177.

Belemnites subclavatus *Voltz, Belemn.* t. 1. f. 11. 1830; *Roemer, Ool.* 167. n. 9.

Hab. Middle Lias.

22. BELEMNITES EXILIS.

Shell very long, subulate, slender, compressed, one-ribbed on the sides, posteriorly sharply acuminate; aperture compressed, rather square, angular; alveolus at an angle of 20° .

Belemnites exilis D'Orb. *Paléont. Franç. Terr. Jur.* i. 101. t. 15. f. 6—12. 1842, *Paléont. univ.* t. 41. f. 6—12., *Moll. Viv. et Fos.* i. 493., *Belemn.* n. 9.

Hab. Upper Lias, very rare.

23. BELEMNITES TESSONIANUS.

Shell elongate, slender, posteriorly obtuse, anteriorly dilated, above with two grooves, underneath with three grooves; alveolus oblique, at an angle of 27° .

Belemnites Tessonianus D'Orb. *Paléont. Franç. Terr. Jur.* i. 103. t. 11. f. 13—18. 1842, *Paléont. univ.* t. 41. f. 13—18., *Moll. Viv. et Fos.* i. 494., *Belemn.* n. 10.

Hab. Upper Lias, not common.

** *Ventral Groove distinct.*—*Gastrocœli* D'Orb. l. c. i. 481.; *Bronn, Gesch. der Naturg.* iii. 150. *Notosiphites Duval*, *Belem.* 23. 29. 38.; see D'Orb. *Moll. Viv. et Fos.* i. 466.

† *Style elongate, lanceolate, or conical, with a ventral Groove extending the whole length below. Lateral Grooves none.*—Fossils in Lower and Great Oolite. *Canaliculati* D'Orb. *Moll. Viv. et Fos.* i. 481.; *Bronn*, l. c. 150.

24. BELEMNITES CANALICULATUS.

Shell elongate, depressed, cylindrical, posteriorly acuminate obtuse, beneath longitudinally grooved; groove not interrupted, equally impressed; aperture depressed, beneath sinuated; alveolus at an angle of 25° .

Belemnites canaliculatus Schloth. *Petref.* 49. n. 9. 1820; *Hartm. Wurt.* 16.; *Keferst. Dict. Nat.* 425. n. 26.; *Zieten, Wurt.* 21. f. 3.; *Roemer, Ool.* 176. n. 26.; D'Orb. *Paléont. Franç. Terr. Jur.* i. 109. t. 13. f. 1—5., *Paléont. univ.* t. 51. f. 5, 6., *Moll. Viv. et Fos.* i. 510., *Belemn.* n. 18.

Hab. Lower Oolite.

25. BELEMNITES SULCATUS.

Shell elongate, compressed anteriorly, depressed posteriorly, equal, apex obtusely mucronate, grooved beneath; the groove disap-

pearing posteriorly; aperture compressed; alveolus at an angle of 18° to $18\frac{1}{2}^{\circ}$.

Plott, Hist of Oxford, ii. f. 6.

Belemnites sulcatus *Miller*, *Trans. Geol. Soc.* ii. 59. t. 8. f. 3, 4. 1823; *Keferst. Dict. Nat.* 428. n. 98.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 105. t. 12. f. 1—8., *Paléont. univ.* t. 49. f. 1—8., *Moll. Viv. et Fos.* i. 508., *Belemn.* n. 16. t. 37. f. 10—14.; *Morris, Brit. Fos.* 117.

Belemnites apiciconus *Blainv. Belemn.* 69. t. 2. f. 2. 1827; *Keferst.* 424. n. 13. a.

Hab. Lower Oolite.

26. BELEMNITES UNICANALICULATUS.

Shell elongate, compressed, rather conical, posteriorly sharply obtuse, underneath longitudinally grooved; grooves anteriorly and posteriorly interrupted; aperture compressed, oval; alveolus at an angle of 22° .

Belemnites acutus *Blainv. Belemn.* 69. t. 2. f. 3. 1827 (not *Miller*, 1823), *Dict. Sci. Nat.* 1827, f. 4.; *Desh. Encyc.* ii. 176. n. 26. 1830; *Zieten, Wurt.* 26. t. 21. f. 1. ?; *Keferst. Dict. Nat.* 424. n. 7.; *Mich. et Potiez, Gal.* i. 21. n. 1.

Belemnites Blainvillei *Voltz, Belemn.* 37. t. 1. f. 9. 1830 (not *Blainv. Catullo*, 1829); *Desh. Encyc. Méth.* ii. 127. n. 10.; *Keferst.* 424. n. 21.; *Roemer, Ool.* 176. n. 27.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 107. t. 12. f. 9—16.

Belemnites unicanaliculatus *Hartm. Zieten, Wurt.* 32. t. 24. f. 8.; *Keferst.* 429. n. 110.; *D'Orb. Paléont. univ.* t. 49. f. 9—16. t. 50. f. 1, 2., *Paléont. Franç. Terr. Jur. Suppl.* t. 3. f. 1, 2., *Moll. Viv. et Fos.* i. 509., *Belemn.* n. 17.

Belemnites sulcatus *Munster.*

Hab. Lower Oolite.

27. BELEMNITES BESSINUS.

Shell elongate, anteriorly compressed, posteriorly depressed, beneath longitudinally grooved; groove posteriorly interrupted; aperture compressed, sinuated beneath; alveolus at an angle of 20° .

Belemnites hastatus *Deslongch. Mém. Soc. Linn. de Norm.* vi. 105. 1. t. f. 4. 1837 (not *Blainv.*).

Belemnites Bessinus *D'Orb. Paléont. Franç. Terr. Jur.* i. 110. t. 13. f. 7—13. 1842, *Paléont. univ.* t. 51. f. 7—13., *Moll. Viv. et Fos.* i. 511., *Belemn.* 19.

Hab. Lower Oolite.

28. BELEMNITES FLEURIANSUS.

Shell elongate, slender, anteriorly compressed, attenuated, posteriorly depressed, very acute, beneath longitudinally grooved; groove posteriorly and anteriorly not interrupted; aperture compressed; alveolus?

Belemnites Fleuriansus *D'Orb. Paléont. Franç. Terr. Jur.* i. 111. t. 13. f. 14—18., *Paléont. univ.* t. 51. f. 14—18., *Moll. Viv. et Fos.* i. 512., *Belemn.* n. 20.

Hab. Great Oolite, rare.

†† *Style elongate, generally lanceolate, with distinct lateral Grooves for a great part of the length. The ventral Groove is very deep in front.*—*Hastati. Hibolithus Montf. Conch. Syst.* i. 387. t. 97. *Porodragus Montf.* 1808. *Actinocamax Voltz, Hartm.*

Fossils in Lias.

29. BELEMNITES TRICANALICULATUS.

Shell elongate, conical, posteriorly obtuse, longitudinally trisulcate; sulci not interrupted, excavated; aperture triangular; alveolus with an angle of 30°.

Belemnites canaliculatus Bauhin, 34. ? 1698.

Belemnites tricanaliculatus Hartmann, Zieten, Wurt. t. 32. t. 24. f. 10., *Wurt.* 17. n. 1.; *Keferst. Dict. Nat.* 428. n. 102.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 100. n. 14. t. 14. f. 1—5., *Paléont. univ.* t. 41. f. 1—5., *Moll. Viv. et Fos.* i. 492., *Belemn.* n. 8.

Belemnites quadricanaliculatus Hartmann, Zieten, Wurt. 32. t. 24. f. 2. 1830, *Wurt.* 17.; *Keferst.* 427. n. 79.

Hab. Upper Lias.

Fossils in Oxford Clay.

30. BELEMNITES HASTATUS.

Shell elongate, slender, spindle-shaped, anteriorly dilated, compressed, posteriorly inflated, depressed, acutely mucronate, beneath grooved; groove disappearing posteriorly, interrupted; aperture rounded; alveolus at an angle of from 11 to 18°.

Bauhin, Hist. Fontes. 34. 1598; *Lloyd, Phil. Trans.* xxv. f. 1705.; *Borguet, Trait. des Petrif.* t. 45. f. 374. 1742; *Longius,* t. 37. f. 3.; *Journal de Phys. An.* ix. t. 1. f. D. E.

Hibolithes hastatus Montf. Conch. Syst. 386. 1808.

Porodragus restitutus Montf. Conch. Syst. 390. 1808.

Belemnites fusiformis Parkins, Org. Rem. iii. 122. t. 8. f. 13. 1811; *Young & Bird, Geol. Yorksh.* t. 14. f. 2.; *Miller, Trans. Geol.*

Soc. ii. 61. t. 7. f. 22. t. 9. f. 5. 7.; *Blainv. Belemn.* 74. n. 14.; *Hartmann, Wurt.* 16.; *Keferst. Dict. Nat.* 426. n. 43.; *Roemer, Ool.* 176. n. 26.; *Pusch, Polens. Paléont.* 162. n. 3.; *Morris, Brit. Fos.* 177.

Belemnites lanceolatus *Schloth. Taschenb.* vii. 111. 1813 (not *lanceolatus* *Sow.* 1829), *Petrif.* 49. n. 8.; *Pusch, Polens. Paléont.* 162. n. 2.

Belemnites hastatus *Blainv. Belemn.* 71. n. 12. t. 1. f. 4. t. 2. f. 4. t. 5. f. 3., *Dict. Sc. Nat.* 1827, f. 5.; *Raspail, Ann. Sc. d'Observ.* t. 8. f. 91.; *Desh. Encyc.* ii. 127. n. 9.; *Hartm. Wurt.* 16.; *Keferst.* 426. n. 50.; *Deslongch. Mém. Soc. Linn.* 38. t. 1. f. 4, 5.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 121. n. 27. t. 18, 19., *Paléont. du Voy. de M. Homm. de Hell.* iii. 420. n. 1., *Paléont. univ.* t. 52, 53., *Moll. Viv. et Fos.* i. 513., *Belemn.* n. 21. t. 37. f. 15—20.; *Matheson, Catal.* 258. n. 279.

Belemnites semihastatus *Blainv. Belemn.* 72. n. 13. t. 2. f. 5. t. 5. f. 1, 2. 1827, *Zieten, Wurt.* 22. t. 22. f. 4.; *Hartmann, Wurt.* 17.; *Keferst. Dict.* 428. n. 88.; *Roemer, Ool.* 175. n. 25.; *Pusch, Polens. Paléont.* 162. n. 6.

Belemnites gracilis *Raspail, Ann. Sc. des Observ.* t. 5. f. 17, 18. 1829; *Morris, Brit. Fos.* 177.

Belemnites ferruginosus *Voltz, Mem.* 36. t. 1. f. 8. 1830; *Keferst.* 425. n. 41.

Actinocamax fusiformis *Voltz, Mem.* 34. t. 1. f. 6. 1830.

Actinocamax lanceolatus *Hartm. Zieten,* t. 25. f. 3. 1830.

Belemnites semisulcatus *Munster, Belemn.* 7. t. 1. f. 1. 8. 15. 1830; *Keferst.* 428. n. 87.

Belemnites pusillus *Munster, Belemn.* 8. t. 1. f. 9, 10. young, 1830; *Keferst.* 427. n. 74.; *Roemer, Ool.* 177.

Belemnites deformis *Munster, Belemn.* 8. t. 1. f. 11. 1830; *Keferst.* 427. n. 34.

Belemnites plano-hastatus *Roemer, Nord. Ool.* 177. n. 30. t. 12. f. 2. 1836.

Belemnites fusoides *Potiez et Mich. Gall.* i. 22. n. 5. 1838.

Hab. Lower and Middle Oxford Clay.

31. BELEMNITES DUVALIANUS.

Shell elongate, slender, rather spindle-shaped, compressed, anteriorly attenuated, posteriorly acuminate, beneath grooved; groove narrow, not interrupted; aperture oval, compressed.

Belemnites Duvalianus *D'Orb. Paléont. Franç. Terr. Jur.* i. 127. n. 29. t. 20. f. 6—10. 1842, *Paléont. univ.* t. 54. f. 6, 7., *Moll. Viv. et Fos.* i. 518., *Belemn.* n. 23.

Hab. Lower Oxford Clay.

32. BELEMNITES COQUANDUS.

Shell elongate, club-shaped, anteriorly attenuated, posteriorly thickened, sharp-pointed, beneath smooth, laterally grooved; grooves excavated posteriorly, and forked; alveolus?

Belemnites coquandus *D'Orb. Paléont. Franc. Terr. Jur. i. 130. n. 31. t. 21. f. 11—18. 1842, Paléont. univ. t. 63. f. 11—18., Moll. Viv. et Fos. i. 533. n. 36.; Matheson, Catal. 258. n. 282.*

Hab. Middle Oxford Clay.

33. BELEMNITES SAUVANAUSUS.

Shell elongate, anteriorly attenuate, posteriorly thickened, sharp-pointed, beneath anteriorly deeply slit; aperture somewhat square, beneath sinuated; alveolus, angle 20° .

Belemnites Sauvanaus *D'Orb. Paléont. Franç. Terr. Jur. i. 127. n. 30. t. 21. f. 1—10. 1842, Paléont. univ. t. 63. f. 1—10., Moll. Viv. et Fos. i. 532. n. 35.; Matheson, Catal. 258. n. 281.*

B. Sauvanaus *D'Orb. l. c. 81.*

Hab. Middle Oxford Clay.

34. BELEMNITES DEDAYANUS.

Shell elongate, somewhat spindle-shaped, anteriorly compressed attenuated, impressed laterally, posteriorly acuminate, beneath one-grooved; groove posteriorly interrupted; aperture compressed, sinuated.

Belemnites Dedayanus *D'Orb. Paléont. Franç. Terr. Jur. i. 126. n. 28. t. 20. f. 1—5. 1842, Paléont. univ. t. 54. f. 1—5., Moll. Viv. et Fos. i. 531. n. 34.*

Hab. Middle Oxford Clay.

35. BELEMNITES ENIGMATICUS.

Shell very short, obtuse, smooth, posteriorly obtusely rounded; aperture somewhat square, above sinuated; alveolus with an angle of 20° .

Belemnites enigmaticus *D'Orb. Paléont. Franç. Terr. Jur. i. 131. n. 32. t. 22. f. 1—3., Paléont. univ. t. 64. f. 1—3., Moll. Viv. et Fos. i. 534. n. 37.*

Hab. Middle Oxford Clay.

36. BELEMNITES LATISULCATUS.

Shell elongate, slender, spindle-shaped, anteriorly alternately depressed, posteriorly depressed, acute, beneath longitudinally grooved; groove not interrupted; aperture depressed.

Belemnites latisulcatus *D'Orb. Paléont. univ.* t. 50. f. 3—8. 1846, *Paléont. Franç. Terr. Jur. Supp.* t. 3. f. 3—8., *Moll. Viv. et Fos.* i. 517., *Belemn.* n. 22.

Hab. Oxford Clay, and Kelloway Rock.

37. BELEMNITES GRANTIANUS.

Shell elongate, cylindrical, compressed, beneath longitudinally broadly grooved; groove excavated; aperture roundedly compressed; alveolus at an angle of 17° .

Belemnites canaliculatus *Grant, Trans. Geol. Soc.* 2d ser. v. t. 23. f. 2, 3. 1837 (not Schloth.).

Belemnites Grantianus *D'Orb. Paléont. univ.* t. 58. 1846, *Paléont. étrang.* t. 32., *Moll. Viv. et Fos.* i. 523., *Belemn.* n. 27.

Hab. India. Kellovian deposit?

38. BELEMNITES ALTDORFENSIS.

Shell rather elongate, conical, anteriorly and posteriorly depressed, longitudinally grooved; groove anteriorly disappearing; aperture roundedly depressed; alveolus at an angle of 20° .

Belemnites Helveticus *Defrance collection; Blainv. Belemn.* 68.

Belemnites Altdorfensis *Blainv. Belemn.* 67. n. 9. t. 2. f. 1. 1827; *Desh. Encyc.* ii. 126. n. 7.; *Hartm. Wurt.* 15. ?; *Keferst. Dict. Nat.* 424. n. 10.; *D'Orb. Paleont. univ.* t. 55. f. 7. 11. t. 59. f. 1. 3., *Paléont. étrang.* t. 33. f. 1—3., *Moll. Viv. et Fos.* i. 522. n. 26.

Belemnites absolutus *Fischer, Oryct. Genv. Moscow*, 173. t. 49. f. 2. 1837; *D'Orb. Murch. and Vern. Russia*, ii. 421. n. 3. t. 29. f. 1—9.

Belemnites Beaumontianus *D'Orb. Paléont. Franç. Terr. Jur.* 118. t. 16. f. 7—11.

Hab. Lower Oxford Clay.

39. BELEMNITES VOLGENSIS.

Shell elongate, somewhat spindle-shaped, anteriorly square-shaped, posteriorly depressed, longitudinally broadly grooved; groove excavated, continuous; aperture square; alveolus 27° .

Belemnites Volgensis *D'Orb. Murch. and Vern. Russia*, ii. 410. n. 1. t. 28. f. 1—14. 1844, *Paléont. univ.* t. 60., *Paléont. étrang.* t. 34., *Moll. Viv. et Fos.* i. 525. n. 29.

Hab. Oxford Clay. Banks of the Volga.

Fossils in Coralline Grit.

40. BELEMNITES ROGERIANUS.

Shell elongate, slender, spindle-shaped, depressed, posteriorly acuminate, anteriorly attenuated, beneath anteriorly grooved; groove disappearing in the middle.

Belemnites pistilliformis *Blainv. Belemn. t. 5. f. 17. 1827* (exclus. f. 14—16.).

Belemnites Rogerianus *D'Orb. Paléont. Franç. Terr. Jur. 132. n. 33. t. 22. f. 9. 15. 1842, Paléont. univ. t. 64. f. 9. 15., Moll. Viv. et Fos. i. 535. n. 38.*

Hab. Upper Oxford Clay.

Fossils in Greensand.

41. BELEMNITES BIPARTITUS.

Shell elongate, spindle-shaped, anteriorly narrowed, somewhat four-sided, posteriorly acuminate, acute, laterally compressed. longitudinally grooved; above rounded; beneath anteriorly grooved.

Pseudobelus bipartitus *Blainv. Belemn. Sup. 113. t. 5. f. 19. 1828.*

Belemnites bicanaliculatus *Blainv. Belemn. Sup. 120. t. 5. f. 9. (exclus. f. 8.) 1828; Raspail, Ann. Sc. Observ. 58.*

Belemnites bisulcus *Raspail, l. c. iii. 88. t. 4. f. 20, 21. 1829.*

Belemnites bipartitus *Catullo, Ann. des Sc. Nat. di Bologna, v. 311. 1829; Desh. Encyc. Méth. 128. n. 11.; D'Orb. Paléont. Franç. Terr. Cret. i. 45. n. 2. t. 3. f. 6. 12., Paléont. univ. t. 69. f. 6. 12., Moll. Viv. et Fos. i. 539. n. 43.; Duval, Belemn. 41. t. 1. f. 1. 8.*

Hab. Greensand (Etage Néocomien).

42. BELEMNITES PISTILLIFORMIS.

Shell elongate, rather spindle-shaped, anteriorly acuminate, posteriorly acutely pointed, laterally and longitudinally two-grooved, beneath grooved anteriorly; alveolus 20.

Beudant, Observ. sur les Belemn. t. 3. f. 9. 1810.

Belemnites minimus *Blainv. Belemn. 119. t. 4. f. 1. t. 5. f. 6. (not minimus Lister.)*

Belemnites pistilliformis *Blainv. Belemn. 98. t. 5. f. 14, 15. (exclus. f. 16, 17.) 1827 (not Roemer, 1835; not Sow. 1829); Raspail, Ann. Sc. Observ. i. 327. t. 8. f. 95. 97. 100. 102.; D'Orb. Paléont. Franç. Terr. Cret. i. 53. n. 6. t. 6. f. 1. 4., Paléont. univ. t. 34. f. 1. 4. t. 68. f. 9, 10. t. 70. Terr. Cret*

Supp. t. 5., Moll. Viv. et Fos. i. 540. n. 44.; Duval, Belemn. 72. t. 8. f. 10. 16.

Belemnites subfusiformis Raspail, Hist. Nat. Belemn. 55. t. 8. f. 93. 1829; D'Orb. Paléont. Franç. Terr. Cret. i. 53. n. 5. t. 4. f. 9. 16.; Duval, Belemn. 66. t. 9, 10.

Belemnites crassior Raspail, Ann. Sc. d'Observ. 57. t. 8. f. 84. 1829.

Belemnites crassissimus Rasp. l. c. 327. t. 8. f. 85. 87. 1829.

Belemnites aculeus echini Rasp. l. c. 327. t. 8. f. 87. 1829.

Belemnites hastatus Rasp. l. c. t. 8. f. 91. 1829.

Belemnites symmetricus Rasp. l. c. 54. t. 8. f. 90. 101. 1829.

Belemnites præmorsus Rasp. l. c. 55. t. 8. f. 27. 1829.

Belemnites contortus Rasp. l. c. 56. t. 8. f. 28, 29. 1829.

Belemnites oblongus Rasp. l. c. 52. t. 8. f. 82. 1829.

Belemnites navicula Rasp. l. c. 51. t. 8. f. 79. 1829.

Belemnites brevirostris Rasp. l. c. 51. t. 8. f. 80. 1829.

Belemnites fusus Rasp. l. c. 52. t. 8. f. 81. 1829.

Belemnites gemmatus Rasp. l. c. 51. t. 8. f. 77. 1829.

Belemnites rostratus Rasp. l. c. 51. t. 8. f. 78. 1829.

Actinocamax fusiformis Voltz, Obs. sur les Belemn. 34. t. 1. f. 6. young, 1830.

Actinocamax Milleri Voltz, Obs. sur les Belemn. 35. t. 1. f. 7. adult, 1830.

Belemnites pistillum Roemer, Nord. Ool. 108. t. 16. f. 7. 1836, Nord. Kreid. 83. n. 2.

Hab. Greensand (Etage Néocomien).

43. BELEMNITES BICANALICULATUS.

Shell elongate, subcylindrical, anteriorly rather four-sided, posteriorly obtusely acuminate, laterally anteriorly longitudinally grooved, beneath anteriorly grooved.

Belemnites bicanaliculatus Blainv. Belemn. Supp. 120. t. 5. f. 8. (exclus. f. 9.) 1828; Keferst. Dict. Nat. 424. n. 16.; D'Orb. Paléont. Franç. Terr. Cret. i. 47. n. 3. t. 3. f. 13. 16., Paléont. univ. t. 69. f. 13. 16. t. 71. f. 5. 8., Terr. Cret. Supp. t. 6. f. 5. 8., Moll. Viv. et Fos. i. 544. n. 47.

Hab. Greensand (Etage Néocomien).

44. BELEMNITES SEMICANALICULATUS.

Shell elongate, cylindrical, posteriorly acuminate, pointed, anteriorly compressed on the sides, beneath sulcate; groove disappearing in the middle of its length; aperture entire; alveolus at an angle of 18.

Belemnites semicanaliculatus Blainville, Belemn. 67. t. 1. f. 13. 1827; Desh. Enc. Méth. ii. 126. n. 6.; D'Orb. Paléont. Franç.

Terr. Cret. i. 59. n. 9. t. 5. f. 10. 15., *Paléont. univ.* t. 76. f. 10. 15. t. 74. f. 7. 9., *Terr. Cret. Sup.* t. 9. f. 7. 9., *Moll. Viv. et Fos.* i. 553. n. 54.; *Duval, Belemn.* 74. t. 6. f. 5. 12.

Hab. (Etage aptice.)

45. BELEMNITES MINARET.

Shell elongate, rather acuminate, anteriorly rounded, beneath one-grooved, posteriorly depressed, sharply conical; alveolus at an angle of 18.

Belemnites rimosus Raspail, Ann. Sc. d'Obs. i. 319. t. 8. f. 68. 1829.

Belemnites depressus Rasp. l. c. 319. t. 8. f. 69. 1829.

Belemnites incurvatus Rasp. l. c. 319. t. 8. f. 71.

Belemnites marginatus Rasp. l. c. 319. t. 8. f. 70. 73, 74.

Belemnites attenuatus Rasp. l. c. 319. t. 8. f. 72.

Belemnites gibbosus Rasp. l. c. 320. t. 8. f. 76.

Belemnites asulus Rasp. l. c. 308. t. 6. f. 19. ?

Belemnites rugosus Rasp. l. c. 322. t. 8. f. 89.

Belemnites minaret Raspail, l. c. 323. t. 8. f. 94. 1829; D'Orb. Paléont. univ. t. 75. f. 1. 8., *Terr. Cretac. Supp.* t. 10. f. 1. 8., *Moll. Viv. et Fos.* i. 551. n. 52.

Belemnites platyurus Duval, Belemn. 73. t. 11. f. 1. 3. 1841.

Hab. Greensand (Etage Néocomien).

Fossils in Gault.

46. BELEMNITES MINIMUS.

Shell elongate, club-shaped (young), posteriorly obtuse (adult), attenuated, acute, anteriorly narrowed, truncate, beneath one-grooved, laterally and longitudinally two-grooved.

Belemnites minimus Lister, Hist. An. Aug. 228. f. 32. 1678; *Miller, Trans. Geol. Soc.* t. 9. f. 6. 1823; *Blainv. Belemn.* 75. t. 4. f. i. c. and *Supp.* 118. (part); *Sow. Min. Conchol.* t. 589. f. 1.; *Keferst. Dict. Nat.* 427. n. 63.; *Bronn, Lethæa Geog.* t. 33. f. 13. ?; *Michelin, Mém. Soc. Géol.* ii. 100.; *D'Orb. Paléont. Franç. Terr. Cret.* i. 57. n. 8. t. 5. f. 3. 9., *Paléont. univ.* t. 76. f. 3. 9., *Moll. Viv. et Fos.* i. 554. n. 55. t. 37. f. 21. 23.; *Geinitz. Charak.* 68. t. 17. f. 32, 33, 34. ?; *Roemer, Kreideg.* 84. n. 3. ?; *Morris, Brit. Fos.* 177.

Belemnites Listeri Mantell, Geol. of Sussex, 88. t. 19. f. 17, 18. 23. 1822; *Phillips, Geol. Yorksh.* t. 1. f. 18.

Belemnites attenuatus Sow. Min. Conch. t. 589. f. 2. 1828; *Keferst. Dict. Nat.* 424. n. 15.; *Morris, Brit. Fos.* 177.

Belemnites jaculum Phillips, Geol. Yorksh. t. 3. f. 1. ? 1829; *Morris, Brit. Fos.* 177.

Hab. Gault. England, &c.

Fossil in Juronien.

47. BELEMNITES ULTIMUS.

Shell elongate, cylindrical, smooth, anteriorly roundedly compressed, beneath one-grooved; groove disappearing gradually; posteriorly acuminate pointed; alveolus at an angle of 20.

Belemnites ultimus D'Orb. *Paléont. univ.* t. 75. f. 9—13. 1846;
Terr. Cret. Supp. t. 10. f. 9. 13., *Moll. Viv. et Fos.* i. 556. n. 56.

Hab. (Etage Juronien.)

3* *Dorsal Groove distinct.*—*Nostocæli* D'Orb. *Bronn*, l. c. 150.
Gastrosiphites Duval, l. c.

† *The Style compressed, often much enlarged, with a distinct deep dorsal Groove, and distinct lateral Grooves.*—Fossil. Néocomien. *Dilatati* D'Orb. l. c. 481.; *Bronn*, 150.

48. BELEMNITES DILATATUS.

Shell oblong, very much compressed, rather lanceolate, somewhat convex on the sides, longitudinally one-grooved, posteriorly obtuse, anteriorly grooved; alveolus at an angle of 20 .

Belemnites dilatatus *Blainv. Belemn.* 29. t. 3. f. 13. b. d. t. 5. f. 18. 1827; *Catullo, Ann. di Hor. di Bologna*, v. 310.; *Desh. Enc Méth.* 132. n. 24.; *Keferst. Dict. Nat.* 425. n. 36.; *D'Orb. Paléont. Franç. Terr. Cret.* i. 39. n. 1. t. 2. f. 20, 21. t. 3. f. 4, 5., *Paléont. univ.* t. 65. f. 7—15. t. 66. f. 20, 21. t. 69. f. 4, 5., *Terr. Cret. Supp.* t. 3. f. 7—15., *Moll. Viv. et Fos.* i. 550. n. 51.; *Duval, Belemn.* 54. t. 4.; *Matheson, Catal.* 258. n. 283.

Belemnites linearis *Raspail, Hist. Nat. Belemn.* 36. n. 8. t. 6. f. 11.

Belemnites elegans *Rasp.* l. c. 36. n. 9. t. 6. f. 10.

Belemnites anomalus *Rasp.* l. c. 36. n. 10.

Belemnites variegatus *Rasp.* l. c. 41. n. 1. t. 7. f. 55.

Belemnites fumosus *Rasp.* l. c. 41. t. 7. f. 58.

Belemnites apiculatus *Rasp.* l. c. 42. t. 7. f. 56.

Belemnites sinuatus *Rasp.* l. c. 42. t. 7. f. 59.

Belemnites spathulus *Rasp.* l. c. 42. t. 7. f. 61.

Belemnites ellipsoïdes *Rasp.* l. c. 43. t. 7. f. 48.

Belemnites complanatus *Rasp.* l. c. 43. t. 7. f. 63, 64.

Belemnites Delphinus *Rasp.* l. c. 44. t. 7. f. 47.

Belemnites bifurcatus *Rasp.* l. c. 44. t. 7. f. 67.

Belemnites augustus *Rasp.* l. c. 44. t. 7. f. 66.

Belemnites amorphus *Rasp.* l. c. 44. t. 7. f. 49.

Belemnites triqueter *Rasp.* l. c. 44. t. 7. f. 46.

Belemnites pseudo-formosus *Rasp.* l. c. 45. t. 8. f. 83.

Belemnites emarginatus *Rasp.* l. c. 45. t. 7. f. 50, 51. 60.

Belemnites difformis *Rasp.* l. c. 45. t. 7. f. 54.

Belemnites mitra *Rasp.* l. c. 45. t. 7. f. 53.

Belemnites mitræformis *Rasp.* l. c. 46. t. 7. f. 52.

Hab. (Etage Néocomien.)

a, b, c, d. Fossil style. Castellane. From Mr. Crantz's Collection.

49. BELEMNITES EMERICI.

Shell oblong, very much compressed, anteriorly dilated, compressed on the sides, swollen, dilated in the middle, depressed in the sides, posteriorly obliquely acuminate, above grooved; alveolus at an angle of 18° .

Belemnites Emerici *Raspail, Ann. Sc. d'Obs.* i. 302. n. 1. t. 6. f. 1. 1829; *D'Orb. Paléont. Franç. Terr. Cret.* i. 617., *Paléont. univ.* t. 66. f. 22, 23. t. 69. f. 1—3. t. 73. f. 1—7., *Terr. Cret. Supp.* t. 8. f. 1—7., *Moll. Viv. et Fos.* i. 548. n. 50.; *Duval, Belemn.* 58. t. 5. f. 1—7.

Belemnites pileus *Raspail*, l. c. 304. n. 2. t. 6. f. 2. 5. 1829.

Belemnites affinis *Raspail*, l. c. 304. n. 3. t. 6. f. 3, 4. 1829.

Belemnites dilatatus *D'Orb. Paléont. Franç. Terr. Cret.* t. 2. f. 22, 23. t. 3. f. 1—3. (pars) 1839.

Hab. (Etage Néocomien.)

50. BELEMNITES LATUS.

Shell elongate, lanceolate, oblique, thick, compressed, posteriorly obtusely mucronate, beneath longitudinally broadly grooved; apex excentric; alveolus with an angle of 20° .

Belemnites latus *Blainv. Mém. sur les Belemn. Supp.* 121. t. 5. f. 10. (adult) 1828; *D'Orb. Paléont. Franç. Terr. Cret.* i. 48. n. 4. t. 4—8. (exclus. f. 1—5.), *Paléont. univ.* t. 67. f. 1—9. t. 68. f. 4—8., *Terr. Cret. Supp.* t. 4. f. 1—9., *Moll. Viv. et Fos.* i. 538., *Belemn.* n. 41.; *Duval, Belemn.* 61. t. 6. (exclus. f. 1.); *Matheson, Cat.* 258. n. 284.

Belemnites obesus *Raspail, Ann. Sc. d'Obs.* i. 307. t. 6. f. 13. 1829.

Belemnites Honoratii *Raspail*, l. c. 316. t. 8. f. 88. 1829.

Belemnites convexus *Raspail*, l. c. 42. t. 7. f. 17. 1829.

Belemnites persona tonsoria *Raspail*, l. c. 46.

Hab. (Etage Néocomien.)

51. BELEMNITES BINERVIUS.

Shell oblong, compressed, nearly equal, anteriorly narrow, above grooved, flattened at the sides, two-striated, posteriorly obtusely pointed; alveolus with angle at $21-30^{\circ}$.

Belemnites binervius Raspail, Ann. Sc. d'Observ. i. 34. n. 4. t. 6. f. 6. 1829; D'Orb. Résumé sur les Céphal. Terr. Cret. i. 617., Paléont. univ. t. 65. f. 1—6. t. 66. f. 9—19., Terr. Cretac. Supp. t. 3. f. 1—6., Moll. Viv. et Fos. i. 536. n. 40.

Belemnites pisciformis Raspail, Ann. Sc. d'Obs. i. 43. t. 7. f. 65. 1829.

Belemnites acinaciformis Raspail, l. c. 35. n. 5. t. 6. f. 8. 1829.

Belemnites truncatus Raspail, l. c. 35. n. 6. t. 6. f. 9. 1829.

Belemnites distans Raspail, l. c. 36. n. 7. t. 6. f. 7. 1829.

Belemnites dilatatus D'Orb. Terr. Cretac. 39. t. 2. f. 9—19. 1839.

Belemnites hybridus Duval, Belemn. 51. t. 3. 1841.

Hab. (Etage Néocomien.)

52. BELEMNITES ORBIGNYANUS.

Shell elongate, somewhat cylindrical, smooth, above somewhat compressed, beneath grooved; groove disappearing in the middle, posteriorly depressly mucronate; alveolus with an angle of 18° .

Belemnites Orbignyanus Duval, Belemn. 65. t. 8. f. 4—9. 1841; D'Orb. Paléont. univ. t. 67. f. 10—16., Terr. Cret. Supp. t. 4. f. 10—16., Moll. Viv. et Fos. i. 539., Belemn. n. 42.

Hab. (Etage Néocomien.)

53. BELEMNITES CONICUS.

Shell short, conical, rather cylindrical, thick, anteriorly dilated, posteriorly acuminate, acute, beneath longitudinally broadly grooved; groove keeled on the sides.

Belemnites conicus Blainv. Belemn. 118. t. 5. f. 4. young, 1827; D'Orb. Paléont. univ. t. 68. f. 13. t. 71. f. 9—16., Terr. Cret. Supp. t. 6. f. 9—16., Moll. Viv. et Fos. i. 545. n. 48.

Belemnites exstinctorius Raspail, Ann. Sc. d'Obs. i. 308. t. 6. f. 20. (adult) 1829.

Belemnites latus D'Orb. Terr. Cret. t. 4. f. 1—3. (exclus. f. 4—8.) 1840; Duval, Belemn. t. 6. f. 1—4. (exclus. f. 2, 3. 5. 8.)

Fos. Greensand (Etage Néocomien.)

54. BELEMNITES GRASIANUS.

Shell oblong, compressed, anteriorly somewhat cylindrical, posteriorly acuminate, acute, above longitudinally broadly grooved; groove externally keeled; alveolus 20° .

Belemnites Grasianus Duval, Belemn. 63. t. 7. f. 1—4. 1841; D'Orb. Paléont. univ. t. 73. f. 8—13. t. 74. f. 1—6., Terr. Cret.

Supp. t. 8. f. 8—13. t. 9. f. 1—6., *Moll. Viv. et Fos.* i. 552. n. 53.

Fos. Greensand (Etage Néocomien).

55. BELEMNITES BAUDOUINII.

Shell elongate, conical, smooth, anteriorly dilated, posteriorly acuminate, acute, beneath grooved.

Belemnites Baudouinii D'Orb. Paléont. Franç. Terr. Cret. i. 54. n. 7. t. 5. f. 1, 2., *Paléont. univ.* t. 76. f. 1, 2., *Moll. Viv. et Fos.* i. 544., *Belemn.* n. 46.

Fos. Greensand (Etage Néocomien).

56. BELEMNITES POLYGONALIS.

Shell elongate, lanceolate, compressed, anteriorly four-sided and lobed, above one-grooved, posteriorly square, on the sides flat or excavated, above and beneath posteriorly flattened or excavated; apex acuminate, pointed; alveolus at an angle of 20—22°.

Belemnites polygonalis Blainv. Belemn. Supp. 121. n. 156. t. 5. f. 10. 1827; *Raspail, Ann. Sc. d'Obs.* i. 330. 1829; *D'Orb. Paléont. univ.* t. 66. f. 1—8. t. 72., *Terr. Cret. Supp.* t. 7., *Moll. Viv. et Fos.* i. 546. n. 49.

Group Tetragonolobi *Raspail*, l. c. iii. 87. t. 4. f. 1—7. 1830.

Group Tetragoni *Raspail*, l. c. iii. 87. t. 4. f. 8. 13. 1830.

Group Heteromorphi *Raspail*, l. c. iii. 88. t. 4. f. 14—19.

Belemnites dilatatus D'Orb. Terr. Cret. t. 2. f. 1—8. (exclus. f. 9—23.

Belemnites isosceles Duval, Belemn. 46. t. 1. f. 9—16. 1841.

Belemnites urnula Duval, l. c. 47. t. 2. f. 1—7. 1841.

Belemnites trabiformis Duval, l. c. 48. t. 2. f. 8—14. 1841.

Belemnites sicyoides Duval, l. c. 49. t. 2. f. 15—20. 1841.

Fos. Greensand (Etage Néocomien).

Doubtful Species.

57. BELEMNITES LAMELLA.

Belemnites lamella Faure Biguet, Cons. sur les Belemn. 39. n. 1. f. 3, 4. 1819; *D'Orb. Paléont. univ.* t. 77. f. 12—17., *Paléont. étrang.* t. 37. f. 12—17., *Moll. Viv. et Fos.* i. 557. n. 57.

Fos. Valdrome en Diois.

58. BELEMNITES VAGINA.

*Belemnites vagina Faure Biguet, Belemn. 40. n. 2. 1819; D'Orb.
Moll. Viv. et Fos. i. 557. n. 58.*

Fos. Valdrome en Diois.

59. BELEMNITES CAPULUS.

*Belemnites capulus Faure Biguet, Belemn. 41. n. 3. 1819; D'Orb.
Moll. Viv. et Fos. i. 558. n. 59.*

Fos. Valdrome en Diois.

60. BELEMNITES COLUTEA.

*Belemnites colutea Faure Biguet, Belemn. 42. n. 4. 1819; D'Orb.
Moll. Viv. et Fos. i. 558. n. 60.*

Fos. Osson.

61. BELEMNITES CORONILLA.

*Belemnites coronilla Faure Biguet, Belemn. 42. n. 5. 1819; D'Orb.
Moll. Viv. et Fos. i. 558. n. 61.*

Fos. Commene.

62. BELEMNITES SILIQUA.

*Belemnites siliqua Faure Biguet, Belemn. 43. n. 6. 1819; D'Orb.
Moll. Viv. et Fos. i. 559. n. 62.*

Fos. Commene.

63. BELEMNITES LEGUMEN.

*Belemnites legumen Faure Biguet, Belemn. 44. n. 7. 1819; D'Orb.
Moll. Viv. et Fos. i. 559. n. 63.*

Fos. Commene.

64. BELEMNITES CASSIA.

*Belemnites cassia Faure Biguet, Belemn. 44. n. 8. 1819; D'Orb.
Moll. Viv. et Fos. i. 559. n. 64.*

Fos. —?

65. BELEMNITES CATALPA.

*Belemnites catalpa Faure Biguet, Belemn. 45. n. 9. f. 5. 1819;
D'Orb. Paléont. univ. t. 77. f. 18., Paléont. étrang. t. 37. f. 18.,
Moll. Viv. et Fos. i. 560. n. 65.*

Fos. Monte Cindre.

66. BELEMNITES ATTENUATUS.

Belemnites attenuatus Faure Biguet, Belemn. 47. n. 10. 1819 (not attenuatus Sow. 1828.) ; D'Orb. Moll. Viv. et Fos. i. 561. n. 66. Fos. Drôme.

67. BELEMNITES CLAVA.

Belemnites clava Faure Biguet, Belemn. 48. n. 11. 1819 ; D'Orb. Moll. Viv. et Fos. i. 561. n. 67. Fos. Commane.

68. BELEMNITES INDEX.

Belemnites index Faure Biguet, Belemn. 50. n. 12. 1819 ; D'Orb. Moll. Viv. et Fos. i. 562. n. 68. Fos. Valdrome.

69. BELEMNITES DACTYLUS.

Belemnites dactylus Faure Biguet, Belemn. 51. n. 13. t. . f. 6. 1819 ; D'Orb. Paléont. univ. t. 77. f. 19., Paléont. étrang. t. 37. f. 19., Moll. Viv. et Fos. i. 563. n. 69. Fos. Commane.

70. BELEMNITES DIGITUS.

Belemnites digitus Faure Biguet, Belemn. 51. n. 14. 1819 ; D'Orb. Paléont. univ. t. 77. f. 20—22., Paléont. étrang. t. 37. f. 20—22., Moll. Viv. et Fos. i. 563. n. 70. Fos. Drôme.

71. BELEMNITES DIGITULUS.

Belemnites digitulus Faure Biguet, Belemn. 53. n. 15. 1819 ; D'Orb. Moll. Viv. et Fos. i. 564. n. 71. Fos. Commane.

72. BELEMNITES STRIATUS.

Belemnites striatus Faure Biguet, Belemn. 53. n. 16. 1819 ; D'Orb. Moll. Viv. et Fos. i. 564. n. 72. Fos. Commane.

73. BELEMNITES DENS.

Belemnites dens Faure Biguet, Belemn. 55. n. 17. 1819 ; D'Orb. Moll. Viv. et Fos. i. 564. n. 73. Fos. Couzon.

74. BELEMNITES FULMEN.

Belemnites fulmen Faure Biguet, Belemn. 55. n. 18. 1819; D'Orb. Moll. Viv. et Fos. i. 565. n. 74.

Fos. Commane.

75. BELEMNITES TONITRUM.

Belemnites tonitruum Faure Biguet, Belemn. 56. n. 19. 1819; D'Orb. Moll. Viv. et Fos. i. 565. n. 75.

Fos. Lyon.

76. BELEMNITES JACULUM.

Belemnites jaculum Faure Biguet, Belemn. 56. n. 20. 1810; D'Orb. Moll. Viv. et Fos. i. 565. n. 76.

Fos. Mont Cindre.

77. BELEMNITES SULCULATUS.

Belemnites sulcatus Risso, Hist. Nat. Eur. Mer. iv., Moll. 14. n. 31. 1826; D'Orb. Moll. Viv. et Fos. i. 566. n. 77.

Fos. Calcareous Marl, Alps.

78. BELEMNITES DACTYLUS.

Belemnites dactylus Risso, Hist. Nat. Eur. Mer. iv., Moll. 14. n. 32. 1826; D'Orb. Moll. Viv. et Fos. i. 566. n. 78.

Fos. Chloritic Marl.

79. BELEMNITES TUBULOSUS.

Belemnites tubulosus Risso, Hist. Nat. Eur. Merid. iv., Moll. 14. n. 33. 1826; D'Orb. Moll. Viv. et Fos. i. 566. n. 79.

Fos. Choritic Grit, Rocca tagliada.

80. BELEMNITES META.

Belemnites meta Blainv. Belemn. 87. t. 3. f. 3. 1827; D'Orb. Paléont. univ. t. 77. f. 8—9., Paléont. étrang. t. 37. f. 8—9., Moll. Viv. et Fos. i. 566. n. 80.

Fos. ———?

81. BELEMNITES ANOMALUS.

Belemnites anomalus Phillips, Geol. Yorksh. 166. 1829; D'Orb. Moll. Viv. et Fos. i. 566. n. 81.

Fos. Kelloway Rock, Yorkshire.

82. BELEMNITES TORNATILIS.

Belemnites tornatilis Phillips, *Geol. Yorksh.* 166. 1829; *D'Orb. Moll. Viv. et Fos.* i. 566. n. 82.

Fos. Kelloway Rock, Yorkshire.

83. BELEMNITES CYLINDRIFORMIS.

Belemnites cylindriformis Parkinson, *Org. Rem.* iii. 127. t. 8. f. 10—14.; *D'Orb. Paléont. univ.* t. 77. f. 1., *Moll. Viv. et Fos.* i. 567. n. 83.

Fos. ——— ?

84. BELEMNITES SUBUNGULATUS.

Belemnites subungulatus Hartmann, *Zieten, Wurt.* 33. t. 25. f. 2. 1830; *D'Orb. Paléont. univ.* t. 77. f. 2. 6., *Paléont. étrang.* t. 37. f. 2—6., *Moll. Viv. et Fos.* i. 567. n. 84.

Fos. Lias, Hartz.

85. BELEMNITES ACICULA.

Belemnites acicula Munster, *Bemerkungen zur Nahern Ken. des Belemn.* 8. t. 1. f. 14. 1830; *Keferst. Dict. Nat.* 424. n. 3.; *D'Orb. Paléont. univ.* t. 77. f. 7., *Paléont. étrang.* t. 37. f. 7., *Moll. Viv. et Fos.* i. 567. n. 85.

Fos. Perhaps young, *B. Puzosianus*.

86. BELEMNITES PREVOSTII.

Shell elongately conical, narrow, somewhat club-shaped, smooth; apex acute, many-striated; striæ very fine, deep.

Belemnites Prevostii Desh. *Encyc. Méth. Vers.* ii. 130. n. 16. 1830; *D'Orb. Moll. Viv. et Fos.* i. 567. n. 86.

Fos. ——— ?

Apocryphal Species.

87. BELEMNITES OBTUSUS.

Belemnites obtusus Blainv. *Belemn.* 101. n. 42. t. 3. f. 14. 1827; *D'Orb. Paléont. univ.* t. 77. f. 10, 11., *Paléont. étrang.* t. 37. f. 10, 11. (bad figure), *Moll. Viv. et Fos.* i. 568.

Established by Blainville, from a copy of a bad figure from Knorr, *Supp.* t. 14. f. 2.

88. BELEMNITES BIFORATUS.

Knorr, Monuments, ii. sect. 2. 242. t. 1*. f. 7. 1.

PACTITES BIFORATUS *Montf. Conch. Syst.* 318. gen. 80. 1808.
 Belemnites biforatus *Schloth. Min. Tasch.* viii. 76. 1813; *D'Orb. Moll. Viv. et Fos.* i. 568.

Established by Montfort from a bad figure of Knorr's.

89. BELEMNITES UNGULATUS.

Knorr, Monum. iii. iv. sup. 146. t. 4. f. 8, 9.
 Belemnites unguatus *Schloth. Petref.* 50. n. 9. 1820; *D'Orb. Moll. Viv. et Fos.* i. 568.

Thalamus polymitus Montf. Conch. Syst. 323. 1808.

Established by Schlotheim from a bad figure of Knorr's.

90. BELEMNITES ALVEOLATUS.

Callirhoe alveolatus Montf. Conch. Syst. 363. 1808.
 Belemnites alveolatus *D'Orb. Moll. et Viv.* i. 569.

Established by Montfort upon an alveolus of a Belemnite.

91. BELEMNITES GLABER.

Knorr, Monum. ii. sect. 2. 241. t. 1*. f. 4.
 Cetocis glaber *Montf. Conch. Syst.* 371. 1808.
 Belemnites cretaceus glaber *Schloth. Min. Tasch.* vii. 69. t. 35. 1813.

Belemnites penicellatus *Schloth. Petref.* 50. n. 10. 1820.
 Belemnites glaber *D'Orb. Moll. Viv. et Fos.* i. 569. 1845.

Established upon a rolled fragment; indeterminate.

92. BELEMNITES POLYFORATUS.

Knorr, Monuments, ii. sect. 2. 241. t. 1*. f. 1—3.
 Acamas polyforatus *Montf. Conch. Syst.* 374. 1808.
 Belemnites polyforatus *Schloth. Min. Tasch.* vii. 69. 1813, *Petref.* 50. n. 11.; *Blainv. Belemn.* 103. n. 45.; *D'Orb. Moll. Viv. et Fos.* i. 569.

Belemnites unguatus *Blainv. Belemn.* 78. n. 18. 1827 (not *Schloth.* 1813).

Established upon a bad figure of Knorr's.

93. BELEMNITES PYRGOPOLON MOSÆ.

Pyrgopolon Mosæ Montf. Conch. Syst. 394. gen. 99. 1808.
 Belemnites pyrgopolon *Mosæ Schloth. Min. Tasch.* vii. 110. 18. 13.
D'Orb. Moll. Viv. et Fos. i. 569.
 Belemnites canaliculatus *Schloth. Petref.* 49. n. 7. 1820.

Established by Montfort upon a fragment of a rolled Belemnite.

94. BELEMNITES RETICULATUS.

Knorr, Monum. ii. sect. 2. 133. t. 6, 7. f. 4.

Chrysaor hercyninus Montf. Conch. Syst. 378. 1808.

Belemnites reticulatus Schloth. Min. Tasch. vii. 110. 1813; *D'Orb. Moll. Viv et Fos.* i. 569.

Established by Montfort upon a bad figure of Knorr's.

95. BELEMNITES FISTULOSUS.

Belemnites fistulosa Blainv. Belemn. 100. n. 41. 1827; *D'Orb.*

Moll. Viv. et Fos. i. 569.

Established by Blainville, after a figure representing a longitudinal section, taken from Knorr, ii. t. 1. f. 5.

APPENDIX.

Beak of Cephalopoda.

1. CONCHORHYNCHUS.

Animal unknown. — *Beak* testaceous. Mandibles triangular, broad, upper? angular in front, convex, angular externally, and marked with radiating ribs, three medial and three lateral; the inner part concave; dental edge with regular prominences and depressions; the lower? with radiating ribs, with a hood in front; the anterior end blunt, and the dental part with strong facets.

Glossopetres sp. and Histerolites sp. *Knorr*.

Rhyncholites *Munster*, *Beitr.* 1829.

Conchorhynchus *Blainville*, *Belemn.* 115. 1827; *D'Orb. Moll. Viv. et Fos.* i. 587.

Lepadites *Schlotheim*, *Petref.* 1820.

Sepia rostrum *Blumenbach*, *Arch.* i. 21.; *Brongn. Ann. Sic. Nat.* ii. 485.; *Gaillardot*, *Ann. Sic. Nat.* ii. 1824. 485.

Fos. Muschelkalk.

1. CONCHORHYNCHUS AVIROSTRES.

Beak triangular.

Knorr, ii. t. 11. i. a. f. 9, 10. 1768.

Gmelin, *N. G. Mineral*, iii. t. 6. f. 79, 80.

Schroet. Lyt. Lexic. viii. 207.

Sepia rostrum *Blumenbach*, *Arch.* i. 21. t. 2. f. 5. a. (b. c.?)

Bec de Sèche *Gaill. Ann. Sci. Nat.* 1824. ii. t. 22. f. 12.

Lepadites avirostres *Schlotheim*, *Petref.* 169. t. 29. f. 10. 1820.

Conchorhynchus ornatus *Blainv. Belemn.* 115. t. 4. f. 12. 1827.

Rhyncholites *Gaillardoti Zieten*, *Wurtz.* 49. t. 37. f. 2. 1830; *Hartm. Wurtz.* 31. t. 37. f. 2. 1830; *D'Orb. Ann. Sci. Nat.* v. 219.

Sepia *Gaillardoti Keferst. Dict. Nat.* 53. 1834.

Conchorhynchus avirostris Bronn, *Lethæa, Géog.* 1827; *Munster, Beitr.* 1839, i. 69. t. 5. f. 2, 3.; *D'Orb. Paléont. univ.* t. 78. f. 1. 6., *Moll. Viv. et Fos.* 590. t. 38. f. 1. 6.

a. Muschelkalk, upper layer. Bayreuth. Presented by J. E. Gray, Esq.

2. CONCHORHYNCHUS DUPLICATUS.

Rhyncolitus duplicatus Munster, *Beitr.* i. 70. t. 5. f. 5. 1829.

Conchorhynchus duplicatus D'Orb. *Paléont. univ.* t. 73. f. 7. 10., *Moll. Viv. et Fos.* t. 38. f. 7—10. from Munster.

Fos. Muschelkalk, Bavaria.

3. CONCHORHYNCHUS CASSIANUS.

Conchorhynchus Cassianus Meyer-Klepstein, *Beitr. z. Geog.* 145. t. 9. f. 7. 1843; *D'Orb. Paléont. univ.* t. 78. f. 7—10., *Moll. Viv. et Fos.* i. 591. t. 38. f. 11, 12. from Klepstein.

C. Cassianicus Bronn, *Gesch. d. Nat.* iii. 323.

Fos. Muschelkalk, saliferous bed, Austrian Alps.

2. RHYNCHOLITES.

Animal unknown. — *Beak* testaceous, depressed, triangular or elongate, broader than thick; above angular, smooth, convex; triangular, acuminate in front, broad behind, and ending in two winglike expansions.

Rhyncholithes sp. Faure Biguet, 1819; Rousseau, *Voy. Demid.*; *D'Orb. Tab. Céphal.* 72., *Ann. Sci. Nat.* v. 9. t. 6. f. 2. 1825.

Rhynchoteuthis D'Orb. *Moll. Viv. et Fos.* i. 593. 1847.

Fos. Of the Jurassic period.

* Kelloway Rock.

1. RHYNCHOLITES HONORATIANUS.

Rhynchoteuthis honoratianus D'Orb. *Paléont. univ.* t. 79. f. 1. 4. 1847., *Moll. Viv. et Fos.* i. 594. t. 39. f. 1. 4., *Ter. Juras. Supp.* t. 4. f. 1—4.

Fos. Dignes, Lower Alps.

2. RHYNCHOLITES ANTIQUATUS.

Rhyncholites antiquatus Rousseau, *Voy. Demid.* t. 1. f. 1.

Rhynchoteuthis antiquatus D'Orb. *Moll. Viv. et Fos.* i. 595. t. 39. f. 5. 8.

Fos. Crimea.

** *Oxford Clay.*

3. RHYNCHOLITES EMERICI.

Anterior part smooth, keeled above, much pointed in front.

Rhyncholites Emerici *D'Orb. Tab. Céphal.* 72. 1825.

Rhyncholite aigu *Blainv. Belemn.* t. 5. f. 22. 1827.

Rhynchoteuthis Emerici *D'Orb. Paléont. univ.* t. 79. f. 9. 12.,

Moll. Viv. et Fos. i. 595. t. 39. f. 9. 12.

Fos. Dignes.

4. RHYNCHOLITES LARUS.

Blunt in front, with a prominence beneath.

Rhyncholites Larus *Faure Biguet*, 58. t. 1. f. 2. t. 6. f. 2. 1819;

D'Orb. Ann. Sci. Nat. 1825. v. 8. t. 6. f. 2.

Rhynchoteuthis Larus *D'Orb. Paléont. univ.* i. t. 79. f. 13. 16. 1847;

Moll. Viv. et Fos. i. 396. t. 39. f. 13. 16.

Fos. Rians.

5. RHYNCHOLITES COQUANDIANUS.

Front part smooth, pointed; hinder part concave, with a central groove; wing short.

Rhynchoteuthis Coquandianus *D'Orb. Paléont. univ.* i. 579. f. 17.

20., *Moll. Viv. et Fos.* i. 597. t. 39. f. 17. 20.

R. Larus, lower mandibles, *D'Orb.* l. c.

Fos. Rians.

3 * *Néocomien.*

6. RHYNCHOLITES ALATUS.

Beak of *Belemnites Emerici* ?

Rhynchoteuthis alatus *D'Orb. Paléont. univ.* i. t. 80. f. 1. 4. 1847,

Moll. Viv. et Fos. i. 598.

Fos. Cheiron.

4 * *Aptien.*

7. RHYNCHOLITES ASTERIANUS.

Rhynchoteuthis asterianus *D'Orb. Paléont. univ.* i. t. 80. f. 57.

1847, *Moll. Viv. et Fos.* i. 598.

Fos. Blieux.

5 * *Senoien.*

8. RHYNCHOLITES DUTEMPLEI.

Like *R. Emerici*, but shorter.

Rhynchoteuthis Dutemplei *D'Orb. Moll. Viv. et Fos.* i. 599.

Fos. Chevot.

Doubtful Species.

9. RHYNCHOLITES TUBERCULATUS.

Rhyncholites tuberculatus *Faure Biguet*, 59. 1809.

Rhynchoteuthis tuberculatus *D'Orb. Moll. Viv. et Fos.* i. 600

Fos. Valdrome.

10. RHYNCHOLITES UNIDENTATUS.

Rhyncholites unidentatus *Faure Biguet*, 58. 1819.

Rhynchoteuthis unidentatus *D'Orb. Paléont. univ.* 1847, *Moll. Viv. et Fos.* 599.

Fos. Valdrome.

11. RHYNCHOLITES HASTA.

Rhyncholites hasta *Faure Biguet*, 59. 1819.

Rhynchoteuthis hasta *D'Orb. Moll. Viv. et Fos.* 599.

Fos. Luc.

Additions and Corrections.

Mr. Frederick Edwards having re-examined the *Beloptera anomala* (p. 118.) of Mr. James Sowerby, and formed a genus for it, the character is here given, and they should be added at p. 118.

4. BELEMNOPSIS.

Animal ——— ? — *Shell* internal, oblong, semi-conical; apex inflexed towards the ventral aspect, and elongated into an umbo; the anterior part with a deep semi-conical cavity, ending in a pore at the ventral side of the umbo internally; cavity lined with two concentric calcareous layers, continued over the ventral surface, and enveloping a series of transverse septa, perforated by a ventral siphon.

Belemnopsis *F. Edwards, Cephalopes of London Clay*, 38. ined.

Beloptera sp. *Sow. Min. Conch.*

This genus is, perhaps, the type of a new family.

1. BELEMNOPSIS ANOMALA.

Beloptera anomala, p. 118.

Belemnopsis plicata *F. Edwards, Ceph. London Clay*, 40. t. 2. f. 3.
ined.

Fos. London Clay. Cabinet of F. Edwards, Esq.

I N D E X.

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THE END.

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OF SCIENCE
CATALOGUE

OF THE

59.4107(92.1)

M O L L U S C A 9

IN

THE COLLECTION

OF THE

BRITISH MUSEUM.

PART II.

P T E R O P O D A .

PRINTED BY ORDER OF THE TRUSTEES.

LONDON, 1850.

habitat. When there is no such indication, the specimens have been either purchased or procured in exchange; and in this case, whenever the place or person from whom they have been received gives authenticity to the specimen, or adds anything to their history, they are noted as being from such and such a collection or locality. Great attention has been paid to dates, and the generic and specific names which appear to possess priority in this respect have been adopted. Reference has also been made to the works in which the genera and species appear to have been first described or noticed.

Catalogues like the present can be little more than compilations, and I have freely availed myself of the labours of my predecessors in the same field; especially of those who have published monographs of the different groups: but the characters of the orders, families, minor groups, and species, have been compared and revised with the specimens.

J. E. GRAY.

11th January, 1850.

CATALOGUE

OF

P T E R O P O D A.

CLASS IV. PTEROPODA.

Head more or less distinct. *Eyes* none. *Mouth* often furnished with cup-shaped appendages.

Fins 2 on the sides of the mouth, or 2 or rarely 4 on the side of the body between the head and abdomen: often furnished with a small intermedial lobe between them, apparently the rudiment of the foot of Gasteropodes.

Body ovate or roundish, often enclosed in a thin, conical, cylindrical or subglobular shell, with a transverse contracted mouth.

Individual unisexual?

Animals free, floating on the surface of the sea by the assistance of their fins. Nocturnal or crepuscular.

Clio, *Browne*, *Jam.* 386, 1756; *Linn. S. N.* ed. 12, i. 1094, 1767.

Mollusca Brachiata, part, *Poli. Test. Sicil.* i. 27.

Mollusca nuda nageant, part, *Latr. Dict. Hist. Nat.* xxiv. 108, 1804.

Cephalopoda pinnata, *Esch. Zool. Atlas*, iii. 1829; *Menke, Zeitschr. Mal.* 72, 1844.

Pterobranches (ou *Pterodibranches*), *Blainv. Bull. Soc. Philom.* 1814, 177; *Organ. Anim.* i. t. 8, 1822.

Pterodibranchiata, *Blainv. Bull. Soc. Philom.* 1816, 28, 122.

Acephales, part, *Blainv. Bull. Soc. Philom.* 1814, 179.

Pteropoda (*Pteropodes*), *Cuvier, Ann. du Mus.* iv. 223, 1804; *Bronn, Gesch. d. Natur.* iii. 353, 1847; *D'Orb. Voy. Amer. Merid.* 65; *Rang, Man. Moll.* 112, 1829; *Gray, Proc. Zool. Soc.* 1847, 203.

Les Mollusques Pteropodes, *Lamk. Hist.* ed. 2, vii. 412.
 Stomatopterophora, *Gray, Med. Repos.* 1821, 235.
 Aporobranchiata (Aporobranches), *Blainv. Man. Malac.* 480, 1825.
 Fam. Pteropodes, *Desh. in Lamk. Hist.* ed. 2, vii. 213.
 Cephalophora Pteropoda Hyalacea, *Alton, Verz. Conch.* 12.
 Therozoa pteropoda, *Eichw. Zool. Spec.* i. 310.

Forskal (*Faun. Arab.* 124) and Lamarck (*Hist. ed.* 2, vii. 415) compared the upper and lower part of the shell of a *Hyalæa* to the valves of the Brachiopodes, which they regard as united together; but this is a mere analogical resemblance in the single species, and not a true resemblance resulting from any affinity, as is proved by the form of the valves of the other genera of the order. The shell of the Pteropoda, is a single valves, analogous to the larger valves of the Gasteropodes, and to one (and not both) of the valves of the Brachiopodes.

Loven compares the fins on the side of the head to the fins on the side of the head of the foetal or first-hatched shell of Gasteropodes, which are sometimes retained in the form of a fringe on each side of the body in the adult animal, as Turbo, Trochus, &c.

M. D'Orbigny gives the following as the result of his observations on the geographical distribution and habits of these animals. Of the 29 species which he has observed, 14 are equally common to all the seas, at least to the Atlantic and Pacific Ocean; 11 have only been observed in the Atlantic, and 4 in the Pacific: 17 of the 29 species are entirely nocturnal and 11 crepuscular. (*Voy. Amer. Merid. Moll.* 72).

The following genera or species have been erroneously referred to this class:—

1. CALLIANARIA (diploptera), *Peron & Lesueur, Ann. Mus.* 1810, t. 2, f. 16, "is probably a Beroe," *Blainv.*
2. CIRROPTERON, *Sars, Besk.* 77, 1835; *Isis*, 1837, 757. According to Allmann, *Rep. Brit. Assoc.* 1843 (see *Athenæum*, 1843, 852), this is the larva of *Buccinum undatum*.
3. BELLEROPHINA (minuta), *Forbes, Rep. Brit. Assoc.* 1843, 132, is the shell of the larva of various genera of Gasteropodes.
4. STEIRA, *Eschsch. Isis*, 1825, and
5. ATALANTA, *Peron*, are Gasteropodes.
5. PYRGO, *Defrance*, placed with the Pteropoda by Cuvier (*Regn. Anim.* ed. 2) and Blainville (*Dict. Sci. Nat.*), is a Foraminifer allied to *Biloculina*.

6. *HYALEA Planci*, Lesueur, *Ann. Mus.* xv. (*Planchus Min. Conch.* t. 2, f. 6, g, h, i), is also a *Biloculina*.
7. *DENTALIUM trachea*, Montague, which has been formed into a genus by various authors, under different names,—as *Cœcum* (*Fleming*), *Brochus* (*Browne*), *Odontidium* (*Philippi*), *Cæcalium* (*Macgillivray*), *Odontostoma* (*Cantraine*), *Dentalopsis* (*Clarke*), *Odontina* (*Zhorzewsky*),—has been doubtfully referred to this order by M. Philippi (*Moll. Sicil.* 102). It has lately been proved by Mr. Clarke (*Ann. and Mag. Nat. Hist.* 1849) to be an operculated Gasteropode which will form a new family, which may be called *Cæcidæ*, among the division of the *Ctenobranchiata*.
8. *CUDULUS, Philippi*, probably belongs to the same group.
9. *DENTALIUM Gadus*, Montague, quoted as the genus *Gadus* by Rang & D'Orbigny (*Voy. Amer. Merid. Moll.* 75), and referred to the genus *Creseis* by Rang, appears to be a true *Dentalium*.

Synopsis of the Orders and Families.

Order I. *THECOSOMATA*. Body inclosed in a shell. Head not distinct. Wings 2, on the side of the mouth. Gills internal.

Sub-order I. *Animal and shell straight. Operculum none.*

Fam. 1. *CAVOLINIDÆ*. Shell calcareous, globular and conical. Animal without any foot-like appendage between the fins.

Fam. 2. *TRIPTERIDÆ*. Shell calcareous, subcylindrical or conical. Animal with a foot-like appendage between the fins.

Fam. 3. *CYMBULIADÆ*. Shell cartilaginous.

Sub-order II. *Animal and shell spiral. Operculum spiral.*

Fam. 4. *LIMACINADÆ*. Animal spiral. Shell spiral, sinistral.

Order II. *GYMNOSOMATA*. Body naked. Head distinct. Wings 2 or 4, on the side of the neck, with an intermediate foot-like appendage. Gills external.

Fam. 5. *CLIONEIDÆ*. Head with 6 conical tentacles. Fins 2.

Fam. 6. *PNEUMODERMIDÆ*. Head with 2 disk-bearing arms. Fins 2.

Fam. 7. *CYMODOCIDÆ*. Head simple. Fins 4.

ORDER I. THECOSOMATA.

Body inclosed in a shell.

Head indistinct, with two wings on the sides of the mouth.

Gills internal. *Tooth* of lingual membrane hooked, with a strong hooked tooth on each side.—*Loven*, t. 3, f. 5, 6.

Thecosoma, *Blainv. Dict. Sci. Nat.* xxxii. 271 (1824); *Malac.* 480 (1825).

Thecosomata, "*Blainv.*" *Rang. Man.* 112; *Gray, Syn. B. M.* 1842, 86, 92; *Proc. Zool. Soc.* 1848, 203.

Cryptocephala, *Latr. Fam. Nat.* 169, 1825.

Pterobranchia and Dactyliobranchia, *Gray, Lond. Med. Rep.* 1821, 235.

Fam. Hyalea, *Ferussac.*

Hyales, *Rang, Man. Moll.* 112 (1829).

Hyalæacea, *Menke, Syn.* 1830.

Hyalinées, *D'Orb. Voy. Amer. Merid.* 77.

Hyalidées, Hyalidæ, *D'Orb. Moll. Cuba*, 70, 71, 1841.

Sub-order I. *Body and shell straight or globular. Operculum none.*

FAM I. CAVOLINIDÆ.

Animal with two united fins, without any posterior foot-like appendage between them. Abdomen voluminous. Gills in pairs, internal superior organs of generation on right side.

Shell calcareous, symmetrical, elongate or globular.

Dactyliobranchia, *Gray, Lond. Med. Repos.* 1821.

Cleodoridæ, *Gray, Syn. Brit. Mus.* 184; *Proc. Zool. Soc.* 1848, 203; *Fig. Mol. Anim.* i. t. 77, 78.

Hyaleæ (Les Hyales), *Ferus. Tabl.* 25, 1821; *Rang, Man.* 112, 1829; *Desh. Ency. Meth.* iii. 310.

Hyalæaceæ (Hyaleaceæ), *Menke, Syn.* 4, 1828.

Hyalæacea, *Menke, Syn. ed.* 2, 6, 1830.

Hyaleacea, *Herrmannsen, Gen.* i. 543, 1846.

Hyalidæ (or Hyaleidæ), *Cantraine, Malac. Medit.* 22, 1841.

Acephalacis inequivalvibus bivalvibus, *Lamk. Syst.* 139.

Hyalidæ, *D'Orb. Moll. Canar.* 1837; *Moll. Cuba*, i. 70, 1841.

Acephales, part, *Latr. Dict. Hist. Nat.* xxiv. 119, 1804; *Blainv. Bull. Soc. Phil.* 1814, 179.

Synopsis of the Genera.

1. CAVOLINA. Shell subglobular. Mouth contracted, with a separate lateral slit on each side.
2. DIACRIA. Shell globular. Mouth contracted, with a contiguous slit on each side.
3. CLIO. Shell elongate, angular, conical. Mouth expanded, without any lateral slit.
4. BALANTIUM. Shell triangular, depressed, transverse, waved. Mouth oblong, narrow, oblique, without any side slit.
5. VAGINELLA. Shell oblong, ventricose, smooth; apex conical. Mouth contracted, narrow, transverse, without any side slit.
6. STYLIOLA. Shell conical, subcylindrical, tapering. Mouth expanded, without any lateral slits.

A. Shell with lateral slit, emitting the mantle.

1. CAVOLINA.

Body short, sometimes furnished with lateral appendages.—*Shell* globular; mouth narrower than the internal cavity, with a lateral slit on each side, interrupted in front.

Cavolina (tridentata), *Gioëni, Desc.* 4to, Naples, 1783; *Abild. Skrivt.*

Naturg. Selsk. i. 171, 1791, not *Brug.* 1792; *Schum, Essai*, 9.

Tricla (tridentata), *Retzius, Nov. Gen.* 1788.

Rheda, *Humph. Mus. Cat.* 1797.

Hyalæa, *Lamk. Prod.* 1799; *Syst. A. S. V.* 139, 1801; *Hist.* vi. 284, *ed.* 2, vii. 413; *Cuvier, Anat. Comp.* 1800; *Ann. du Mus.* iv. 223, 1804; *D'Orb. Mol. Cuba.*

Hyaleus (tridentata), *Montf. Conch. Syst.* ii. 47, 1810.

Hyalea globulosæ, *Rang, Man.* 114, 1829.

Hyalus, *Froriep & Meckel.*

Hyalæa, *Schweigger, Naturgesch.* 749, 1820; *Deshayes; Van Beneden, Nov. Mem. Acad. Brux.* xii. 1839; *Cantraine, Malac. Medit.* 23, 1841; *D'Orb. Moll. Cuba*, 1, 71.

Anomia sp., *Forsk. Faun. Arab.* 1776.

Fissurella sp., *Brug.; Megerle*, 1811.

? Archonta, *Montf. C. S.* ii. 50, 1810.

? Glandiolus, *Montf. C. S.* i. 314, 1808.

Monoculus sp., *Lesson.*

Caulina, *Poli, Test. Sicil.*

* *Shell globular, hinder central process short.*

1. CAVOLINA TRIDENTATA.

Shell yellowish, pellucid, thin, very finely striated transversely; terminal tooth longer than the lateral ones.

Anomia tridentata, *Gmelin*, *S. N.* 3348, No. 42; *Forsk. Arab.* 124, t. 40, f. 6; *Chem. Conch.* viii. 65, vignette 13, f. g.; *Chiage Mem.* iii. t. 44, f. 1, 2.

Cavolina natans, *Abildgaard*, *Soc. Hist. Nat. Copenh.* i. Part 2, t. 10; *Cuvier*, *Ann. du Mus.* iv. 224, t. 59.

Caulina natans, *Poli*, *Test. Sicil.* iii. 39, t. 44, f. 1, 2.

Hyalæa papilionacea, *Bory de St. Vincent*, *Voy.* i. 137, t. 5, f. 1; *Blainville*, *Dict. des Sc. Nat.* xxii. 86, f. 2.

Hyalæa cornea, *Roissi*, *Buff. de Sonnini*, v. 73; *Lamk. Syst.* 1801.

Hyalæa tridentata, *Bosc. Coq.* ii. 241, t. 9, f. 4; *Lamk.* vi. 286; *D'Orb.* 1839; *Hist. Nat. Isles Canar. Moll.* 27; *Ram. de Sagra*, *Hist. Isle Cuba*, *Moll.* 72; *Philippi*, *Sicil.* 101, ii. 70.

Hyalæa Chemnitziana, *Peron et Lesueur*, *Ann. du Mus.* xv.

Hyalæa Forskalii, *Lesueur*, *D'Orb. Voy. Amer. Merid. Moll.* 89, t. 5, f. 1—5.

Hyale tridentée, *Voy. Bonite Moll.* t. 4, f. 1, 7, t. 9, anal.

Hyalæa truncata, *Krauss*, *Sudafr. Moll.* 34, t. 2, f. 12.

a—c. Shell. Gulf of Guinea. Presented by J. Crouch, Esq.

f—i. Shell. Borneo. Presented by the Admiralty.

j. Shell.

k—m. Shell. India.

n. Shell. Naples.

o—q. Animal and shell, in spirits. Borneo. Presented by Capt. Sir Edward Belcher, R.N., C.B.

r, s. Animal and shell, in spirits. Tropical Seas. Presented by Lieut. A. Smith, R.N.

2. CAVOLINA TENIOBRANCHIA.

Hyalæa teniobranchia, *Peron*, *Ann. Mus. Hist. Nat.* xv. t. 3, f. 13.
Hyalea Peronii, *Rang.*

Hab.

3. CAVOLINA AQUENSIS.

Hyalæa aquensis, *Gratel. Bull. Bord.* ii. 4, 1827; *Conch. Pterop.* 21, t. 1, f. 1, 2; *Atlas*, t. 1, f. 1, 2.

Hyalea Orbignii, *Rang*, *Mem. Paris*, ii. 387, 1827; *Ann. S. Nat.* xvi. 496, t. 19, f. 3, 1829.

Fossil.

4. CAVOLINA AFFINIS

Shell globular, inflated, horny, posteriorly three-spined; middle spine longer and narrower than the others, slightly inflexed; aperture transverse, narrow; inferior lip very long, narrow, sinuated superiorly.

Hyalæa affinis, *D'Orb. Voy. Am. Mer. Moll.* 91, t. 5, f. 6—10; *Desh. in Lamk. Hist. ed. 2*, vii. 418.

? *Hyalæa Peronii*, *Lesueur, Bull. Soc. Phil.* 1813.

Hab.

5. CAVOLINA GIBBOSA.

Shell globular, inflated, very gibbous anteriorly, three-spined posteriorly; lateral spines short, middle acuminate, strongly recurved; aperture narrow, deeply covered with the lip.

Hyalæa gibbosa, *Rang, Monogr. ined.*; *D'Orb. Voy. Am. Merid. Moll.* 95, t. 5, f. 16—20 (1836); *Moll. de Canaries*, 28; *Ram. Sagra, Hist. Cuba Moll.* 74; *Philippi, Sicil.* ii. 71; *Cantraine, Bull.* 27, t. 1, f. 5; *Lamk. Hist. ed. 2*, vii. 419.

Hyale bossue, *Voy. Bonite Moll.* t. 4, f. 13, 19.

a—c. Animal and shell, in spirits. Presented by Lieut. A. Smith, R.N.

6. CAVOLINA UNCINATA.

Shell globular, of a transparent horny colour, posteriorly three-spined; median spine longest, strongly curved, hooked; aperture narrow; lips shorter than in the other species.

Hyalæa uncinata, *Rang, pl. ined.*; *D'Orb. Voy. Am. Merid. Moll.* 93, t. 5, f. 11—15 (1836); *Ramon, Sagra, Hist. Cuba Moll.* 73, t. 2, f. 1—4; *Desh. in Lamk. Hist. ed. 2*, 418.

Hyale à crochet, *Voy. Bonite Moll.* t. 4, f. 8, 12.

a—e. Shell. Coast of Brazil. Presented by Dr. Sinclair, R.N.
f. Shell.

g—r. Shell. Red Sea.

s—z. Animal and shell, in spirits. Tropics. Presented by Lieut. A. Smith, R.N.

7. CAVOLINA FLAVA.

Shell ovate, gibbous, glassy, posteriorly three-spined; middle spine the longest, slightly curved; aperture narrow; inferior lip in form of a hood, somewhat beaked, arched.

Hyalæa flava, *D'Orb. Voy. Am. Mer. Moll.* 97, t. 5, f. 21—25; *Desh. in Lamk. Hist. ed.* 2, 418.

Hab.

8. CAVOLINA GLOBULOSA.

Hyale globuleuse, *Rang. Voy. Bonite Moll.* t. 4, f. 20, 24, not described.

Hab.

9. CAVOLINA ANGULOSA.

Hyale angulée, *Eydoux & Souleyet, Voy. Bonite Moll.* t. 4, f. 1, 6, not described.

Hab.

10. CAVOLINA QUADRIDENTATA.

Shell somewhat globular, inflated, posteriorly obtuse, with four teeth on the margin; marked on the back with five grooves, gibbous on upper part, smooth; aperture narrow, very finely cleft laterally; apex sometimes truncated.

Hyalæa quadridentata, *Lesueur, D'Orb. Voy. Amer. Merid. Moll.* 98, t. 6, f. 1—5; *Blainv. Dict. des Sc. Nat.* xxii. 81 (1822); *Rang. Monogr.* ined.; *D'Orb. Moll. des Canar.* 25; *Ram. Sagra Hist. Cuba Moll.* 75; *Desh. in Lamk. Hist. ed.* 2, vii. 419.

Hyale à quatre dents, *Voy. Bonite Moll.* t. 4, f. 25, 32.

H. quadrispinosa, *D'Orb. Amer. Merid. Moll.* 85.

Hab.

11. CAVOLINA LONGIROSTRA.

Shell ovate, globular, terminated anteriorly with a rather long, arched, channelled beak, posteriorly shortly truncate, laterally provided with short hooked wings, inferiorly three-ribbed; aperture transverse; narrow.

Hyalæa longirostra, *Lesueur, D'Orb. Voy. Am. Mer. Moll.* 100, t. 6, f. 6—10; *Blainv. Dict. Sc. Nat.* xxii. 81; *D'Orb. Moll. des Canar.* 29; *Ram. Sagra Hist. Cuba Moll.* 76; *Desh. in Lamk. Hist. ed.* 2, vii. 419, n. 11.

Hyale longirostre, *Voy. Bonite Moll.* t. 5, f. 7, 13.

Hab. Atlantic Ocean, *Lesueur.* Amboina and Teneriffe, *Quoy.*

a—z. Shells. St. Vincent's, W. I. From the Rev. L. Guilding's collection.

12. CAVOLINA LIMBATA.

Shell rounded, globular, flat beneath, truncated posteriorly, laterally provided with triangular wing-shaped appendages; aperture transverse, narrow; labrum terminated by a rather long channelled beak.

Hyalæa limbata, *D'Orb. Voy. Am. Mer. Moll.* 101, t. 6, f. 11—15; *Ram. Sagra Hist. Cuba Moll.* 77, t. 2, f. 5—8; *Desh. in Lamk. Hist.* ed. 2, vii. 417.

Hyalæa longirostris, *Quoy et Gaim. Voy. Ast.* ii. 380, t. 26, f. 20—24; *Desh. in Lamk. Hist.* ed. 2, vii. 416.

Hab.

** *Shell oblong, elongated; central process elongate, conical.*

13. CAVOLINA LABIATA.

Shell elongated, of a somewhat trapezoidal form, inflated, terminated posteriorly by a very long point; aperture transverse, with very long lip-shaped margins.

Hyalæa labiata, *D'orb. Voy. Am. Mer. Moll.* 104, t. 6, f. 21—25; *Moll. des Canar.* 29; *Ram. Sagra Hist. Cuba Moll.* 78, t. 9, f. 12; *Desh. in Lamk. ed.* 2, vii. 421.

Hyale labiée, *Voy. Bonite Moll.* t. 5, f. 27, 32.

Hab.

14. CAVOLINA INFLEXA.

Shell elongated, conical, compressed on each side, elongated posteriorly, terminated by a recurved point, laterally armed with a short point; aperture ovately transverse, laterally deeply cleft.

Hyalæa inflexa, *Lesueur, Bull. Soc. Philom.* xiii. No. 69, t. 5, f. 4, a, b, c, d; *Blainv. Dict. Sc. Nat.* xxii. 80; *D'Orb. Voy. Am. Mer. Moll.* 103, t. 6, f. 16—20; *Ram. Sagra Hist. Cuba Moll.* 79; *Desh. in Lamk. Hist.* ed. 2, vii. 422.

Hyale inflechie, *Voy. Bonite Moll.* t. 5, f. 21, 26.

Hyalæa vaginella, *Cantraine, Bull. Brux.* ii. 380; *Philippi, Sicil.* ii. 71.

Hyalæa uncinata, *Hæninghaus. MSS.*; *Philippi, Sicil.* i. 101, t. 6, f. 18, not *Rang.*?

Hab.

2. DIACRIA.

Body short, sometimes with lateral appendages.—*Shell* globular ; mouth narrower than the cavity, with a slit on each side, not interrupted in front ; apex often truncated in the adult.

Diacria (trispinosa), *Gray, Syn. Brit. Mus.* 1840, 1842 ; *Proc. Zool. Soc.* 1847, 203 ; *Agass. Nom.* ; *Herrm. Ind. Gen. Malac.* i. 383.

Hyalea b. elongata, Rang. Man. 114, 1829.

*Hyalæa ***, *D'Orb. Voy. Amer. Merid.* 77 ; *Cuba*, 80.

1. DIACRIA TRISPINOSA.

Shell elongated, straight, dilated anteriorly, compressed on each side, terminated posteriorly with a very long spine, armed laterally with two short spines.

Hyalæa trispinosa, Lesueur, Blainv. Dict. Sci. Nat. xxii. 82 ; *D'Orb. Voy. Am. Mer. Moll.* 106, t. 7, f. 1—5, and t. 20, f. 1, 2 ; *Moll. des Canar.* 29, No. 14 ; *Ram. Sagra Hist. Cuba Moll.* 80 ; *Chemn. Conch.* i. 65, vign. 13, f. a—d (1785) ; *Rang, Monog. ined.* t. 3 ; *Guerin, Icon. Reg. Anim. Moll.* t. 4 ; *Blainv. Dict. Sc. Nat.* xxii. 82 ; *Lamk. Hist.* ed. 2, vii, 421, No. 15 ; *Desh. E. M.* iii. 310 ; *Philippi, Sicil.* ii. 71 ; *Loven, K. Vet. Akad.* 1847, t. 3, f. 4 ; *Forbes & Hanley, Brit. Moll.* ii. 380, t. U, f. 3.

H. depressa, Bivon, Efem. Sicil. t. 1, f. 4, 5 ; *Philippi, Sicil.* i. 101, t. 6, f. 19.

H. triacantha, Guidotti, Bronn, Ital. 85.

Hyale à trois pointes, Voy. Bonite Moll. t. 6, f. 1, 10.

a—g. *Shell.* Coast of Brazil. Presented by Dr. Sinclair, R.N.

2. DIACRIA ORBIGNII.

Shell ovate, globular, smooth on the upper part and convexly gibbous, flattish inferiorly, radiately grooved, terminated anteriorly by an inflexed semicircular lip ; deeply cleft at the sides ; posterior extremity scarcely prominent.

Hyalea Orbignii, Rang, Ann. Sci. Nat. xvi. 496, t. 19, f. 3 ; *Desh. in Lamk. Hist.* ed. 2, vii. 417.

Hab. Fossil, St. Paul, near Dax.

3. DIACRIA MUCRONATA.

Shell reddish coloured, pellucid, thin, triangular, transversely striated, undulated lengthwise, rounded anteriorly; terminal spine sharp, longer than the lateral ones.

Hyalæa mucronata, Quoy & Gaim. *Ann. Sc. Nat.* x. 231, t. 8, f. 1, 2; *D'Orb. Voy. Am. Mer. Moll.* 108, t. 7, f. 6—10.

Hyalæa trispinosa, Quoy & Gaim. *Zool. Astr.* t. 27, f. 17—19, ii. 378 (from *Ann. Sci. Nat.*)

H. trispinosa, part, *Desh. in Lamk. Hist.* ed. 2, vii. 417, n. 4; *Philippi, Sicil.* ii. 71.

Hab.

4. DIACRIA DEPRESSA.

Shell elongated, triangular, superiorly dilated, inferiorly sharp pointed, strongly arched, depressed, glossy, underneath three-ribbed; aperture narrow, semicircular, deeply cleft on each side.

Hyalæa depressa, *D'Orb. Voy. Am. Mer. Moll.* 110, t. 7, f. 11—14; *Desh. in Lamk. Hist.* ed. 2, vii. 422.

Hab.

5. DIACRIA LÆVIGATA.

Shell somewhat round, depressed, thin, shining, glossy, hooked posteriorly, shortly eared on each side.

Hyalæa lævigata, *D'Orb. Voy. Am. Mer. Moll.* 110, t. 7, f. 15—19; *Desh. in Lamk. Hist.* ed. 2, vii. 423.

Hyale lisse, *Voy. Bonite Moll.* t. 5, f. 14, 20.

Hab.

B. *Shell without any lateral slit.*

3. CLIO.

Animal elongate, conical, without lateral appendages.—*Fins* expanded, united behind, without any small intermediate lobe.—*Shell* elongate, angular, conical; mouth larger than the cavity, without any lateral slits.

Clio (pyramidata), *Browne, Jam.* 386, 1756 (not *Pallas*, 1774, nor *O. F. Muller*, 1776); *Linn. Syst. Nat.* ed. 12, 1094, 1767; *Gmelin, S. N.* 3149.

Cleodora (pyramidata), *Peron & Lesueur, Ann. Mus.* xv. 1810; *Lamk. Ext. du Cour.* 1812; *Lamk. Hist. A. S. V.* vi. 288, ed. 2, vii. 427; *Blainv. D. S. N.* ix. 386, 1817; *Man. Malac.* 481, 1825; *Cuvier, Reg. Anim.* 1817, ed. 2, 1830; *Rang. Ann. Sci. Nat.* xiii. 302, 1828; *Isis*, 1830, 207; *Desh. E. M.* ii. 242; *Quoy & Gaim. Voy. Astrol. Zool.* ii. 382; *Menke, Syn.* 4; *D'Orbigny, Amer. Merid. Moll.* 111; *Cuba*, i. 70, 81; *Gray, Moll. Fig.* t. 77.

Clidora (pyramidata), *Schweigger, Naturgesch.* 750, 1820; *Menke, Syn. ed.* 2, 9, 1830.

Hyalæa (part), *Lesueur; D'Orb. Amer. Merid.* 77.

Cleodores proprement dites, *Rang, Man.* 115, 1829.

Pleuropus (pellucidus), *Eschsch. Isis*, 1825; *Zool. Atlas*, iii. 16 (1829).

Pontica (part), *Leach, MSS. B. M.* 1819.

* *Sides of mantle simple.* *Clio.*

1. CLIO PYRAMIDATA.

Shell triangular, pyramidal, short; mouth obliquely truncated.

Clio pyramidata, No. 1, *Browne, Jamaica*, t. 43, f. 1; *Linn., Gmel.* p. 3148; No. 2, *Voy. de la Peyrouse*, t. 20, f. 1—3, iv. 61; *La Billard. Journ. de Phys.* 1787, xxxi. 207, t. 11, f. 27.

Cleodora pyramidata, *Rang, Mon.* ined.; *Blainv. Dict. Sc. Nat.* ix. 387; *D'Orb. Moll. des Canar.* 30; *Ram. Sagra Hist. Cuba Moll.* 83; *Lamk. Hist.* ed. 2, vii. 429; *Quoy & Gaim. Voy. Astrol.* ii. 386, t. 27, f. 7, 13.

Hyalæa pyramidata, *D'Orb. Voy. Am. Mer. Moll.* 113, t. 7, f. 30—32, var. *a.* 25—29, var. *b.* t. 8, f. 32, 33; *Bosc. Hist. Nat. Coq.* ii. t. 9, f. 1—3; *Peron & Lesueur, Mem. Ann. Mus.* xv. t. 2, f. 14; *Roissi, Buffon de Sonnini*, v. 73 (vii. 37); *Cantraine, Mem.* 30, t. 1, f. 9.

Hyalæa lanceolata, *Lesueur, Nouv. Bull. Soc. Phil.* iii. No. 69, t. 5, f. 3 (1813).

Cleodora lanceolata, *Rang, Monog.* ined.; *Ann. Sci. Nat.* xvi. t. 19, f. 1? *Quoy & Gaim. Voy. Ast. Moll.* t. 27, f. 6—13, var. *a.*; *Icon. Regn. Anim. Moll.* t. 4, f. 8; *Blainv. Dict. Sc. Nat.* xxii. 80, t. 64; *Philippi, Sicil.* i. 102, ii. 81; *Ferussac, Bull. Sci. Nat.* xii. 349.

Cleodore lanceolée, *Voy. Bonite Moll.* t. 6, f. 17, 25.

Clio caudata, No. 2, *Browne, p.* 386? (indiv. adult?); *Gmel. S. N.* 3148.

Cleodora caudata, *Blainv. Ann. Sc. Nat.* ix. 387, 388; *Lamk. Hist.* ed. 2, vii. 430.

Hyalæa caudata, *Roissi, Buffon de Sonnini*, v. 75? (vii. 37).

Cleodore de Brown, *Blainv. D. S. Nat.* t. 59, f. 1; *Man. Malac.* t. 46, f. 1.

Pontica elegans, *Leach, MSS. Brit. Mus.* 1819.

Hab. Sicily.

a—o. Sicily. Presented by A. Melly, Esq.

p, q. Congo (Expedition). Presented by the Admiralty.

r, s. Coast of Bengal. Presented by Dr. Sinclair, R.N.

t, u. Animal and shell, in spirits. Congo Expedition.

Pontica elegans, *Leach, MSS. B. M.* 1819.

v, w. Animal and shell, in spirits. Sicily. Presented by A. Melly, Esq.

2. CLIO CUSPIDATA.

Shell with the lateral hooked points longer than the intermediate one.

Hyalæa cuspidata, *Bosc. Hist. Nat. Coq.* ii. 241, t. 9, f. 5—7 (1802); *Dict. Hist. Nat. Deterv.* xxv. t. 2, 35; *Lamk. Anim. s. Vert.* vi. 286, ed. 2, vii. 416; *Blainv. Dict. Sc. Nat.* xxii. 82; *D'Orb. Voy. Am. Mer. Moll.* 112, t. 7, f. 20, 24; *Moll. des Canar.* 30, No. 15.

Cleodora cuspidata, *Quoy & Gaim. Voy. Ast. Zool.* ii. 384, t. 27, f. 1—5; *Rang. Monog.* ined.; *D'Orb. Ram. Sagra Hist. Cuba Moll.* 82; *Philippi, Sicil.* ii. 71; *Cantraine, Mem.* 29, t. 1, f. 8.

Cleodore cuspidée, *Voy. Bonite Moll.* t. 6, f. 11, 16.

Cleodora Lessonii, *Rang. Monog.* ined.; *Lesson, Voy. Coq.* t. 10, f. 1.

Cleodora quadrispinosa, *Rang. Monog.* ined.; *Lesson, Voy. Coq.* t. 10, f. 2 (animal erroneous).

a. Shell.

b—q. Shells. Sicily. Presented by A. Melly, Esq.

r, s. Animal and shell, in spirits. Sicily. Presented by A. Melly, Esq.

3. CLIO LAMARTINIERI.

Cleodora Lamartinieri, *Rang. Mol. Cuba*, 83, note, from *Lapeyrouse*, t. 20, f. 1, 3; *D'Orb. Ram. Sagra Hist. Cuba Moll.* 83, note.

Hab. Pacific Ocean.

4. CLIO DEPRESSA.

Cleodore plate, *Eydoux & Souleyet, Voy. Bonite Moll.* t. 6, f. 26, 32, not described.

Hab.

5. CLIO CHAPTALII.

Cleodore de Chaptal, *Eydoux & Souleyet, Voy. Bonite Moll.* t. 7, f. 1—5, not described.

Hab.

**** Side of mantle with elongate process. Pleuropus.**

6. CLIO PELLUCIDA.

Shell conical. Side of the mantle with elongated tentacula.

Pleuropus pellucidus, *Eschsch. Isis*, 1825 ; *Zool. Atlas*, iii. 1829, 16, t. 15, f. 1.

Cleodore courtée, *Eydoux & Souleyet, Voy. Bonite Moll.* t. 7, f. 6, 10.

Cleodora, *Blainv. Man. Malac.*

Hab.

***** Fossil.**

7. CLIO INFUNDIBULUM.

Cleodora infundibulum, *S. Wood, Ann. and Mag. N. H.* ; *Bronn, Gesch.* iii. 353.

Fossil. Crag.

4. BALANTIUM.

Shell triangular, depressed, transversely waved ; aperture oblong, narrow, oblique.

Balantium (recurvum), *Leach, MSS. Brit. Mus.* 1819 ; *J. G. Children, Jour. Roy. Inst.* 1829, xv. 220, t. 7, f. ; *Benson, Jour. Asiat. Soc. Bengal*, iv. 176, 1835, vi. 150, 1837.

Cleodora sp., *Rang, Guerin, Mag. Zool.* 1834, t. 44.

Hyalæa (Cleodora) sp., *D'Orb. Voy. Amer.* 116.

Pontica (recurvum), part, *Leach, MSS. Brit. Mus.* 1819.

1. BALANTIUM RECURVUM.

Shell triangular, compressed, glossy, shining, transversely regularly striated, longitudinally three-ribbed on the back; apex acuminate, recurved; aperture oblong, narrow, oblique, angled on each side.

Balantium recurvum, *Children, Journ. Inst. Roy.* xv. 220, t. 7; *Rang, Mon.* ined.; *Benson, Jour. Asiat. Soc. Bengal*, iv. 176, 1835, vi. 150, 1837.

Cleodora balantium, *Rang; Guérin, Mag. Zool.* 1834, t. 44; *Desh. in Lamk. Hist.* ed. 2, vii. 431.

Hyalæa balantium, *D'Orb. Voy. Am. Mer. Moll.* 116, t. 8, f. 1—4.

Cleodore bourse, *Voy. Bonite Moll.* t. 7, f. 11, 16.

a. Shell. Congo Expedition. Presented by the Admiralty.

b. Animal of a, in spirits. Congo Expedition. Presented by the Admiralty.

Pontica recurvum, *Leach, MSS. B. M.* 1819.

2. BALANTIUM INFLATUM.

Cleodore renflée, *Eydoux et Souleyet, Voy. Bonite Moll.* t. 7, f. 17, 19.

Hab.

3. BALANTIUM AUSTRALE.

Shell conical, elongate, angulose, above convex, with a slight longitudinal groove, transversely striated; mouth semilinear.

Hyalæa australis, *D'Orb. Voy. Am. Mer. Moll.* 117, t. 8, f. 9—11.

Cleodore australe, *Voy. Bonite Moll.* t. 7, f. 20, 23.

Hab. Cape Horn.

4. BALANTIUM RUGOSUM.

Shell very much depressed, elongate, conical, flattened, slightly arched, irregularly transversely grooved above and below, flat; mouth linear.

Hyalæa rugosa, *D'Orb. Voy. Am. Mer. Moll.* 118, t. 8, f. 12—14.

Hab. Pacific Ocean.

5. VAGINELLA.

Shell oblong, ventricose, smooth; apex conical; mouth contracted, transverse, without any lateral slit.

Vaginella (Vaginelle), *Daud. in Bosc, Vers.* i. 195; *Basterot, Mem. Hist. Nat. Paris*, ii. 19; *Gray, Syn. B. M.* 1842, 86; *Bowdich, Elem. Conch.* i. t. 3, f. 10.

Vaginula, *G. B. Sowerby, Gen. t.* —, *Manual*, 112, ed. 2, 286. (Misprint). Not *Ferussac*.

Vaginule, *D'Orb. Voy. Amer. Merid.* 119 (note).

Creseis sp., *Rang, Ann. Sci. Nat.* xvi. t. 18. f. 2, t. 19, f. 13.

Cleodora sp., *Desh. Ency. Meth.* iii. 1106; *Dict. Class. H. N.*; *Blainv, Mal.* 481; *Grateloupe, Bull. Linn. Soc. Bord.* ii. 75.

1. VAGINELLA STRANGULATA.

Shell elongately ventricose, with an acute apex, depressed, narrowed at the aperture, smooth; aperture transverse, somewhat ovate, compressed, sinuated on each side.

Cleodora strangulata, *Desh. Dict. Class. H. Nat. in Lamk. Hist.* ed. 2, vii. 431; *Grateloupe, Bull. Linn. Soc. Bord.* ii. 75.

Vaginella *Daudin, in Bosc, Vers.* i. 195.

Vaginella depressa, *Basterot, Mem. Soc. H. N. Paris*, ii. 19, t. 4, f. 16; *Bowdich, Elem. Conch.* i. t. 3, f. 10.

Vaginelle de Bordeaux, *Blainv. Malac.* t. 46, f. 2.

Creseis vaginella, *Rang, Ann. Sci. Nat.* xiii. 309, t. 18, f. 2.

Vaginula *Daudinii*, *Sow. Gen.* f. 5; *Sow. Man.* 112, ed. 2, 286, fig. a, b. Fossil. Bordeaux.

6. STYLIOLA.

Body elongate, conical, rounded.—*Shell* elongate, conical, subcylindrical; mouth larger than the cavity, without any lateral slits.

Styliola (recta), *Lesueur, in Blainv. Mon. Moll.* 1825.

Cresis (Les *Creseis*), *Rang, in Ann. Sci. Nat.* xiii. 302, 1828; *Isis*, 1830, 207; *Desh. Dict. Class. H. Nat.* xiv. 351, 1828; *Rang, Mon. Moll.* 115, t. 2, f. 3, 1829.

Creseis (or *Criseis*?), *Eschsch. Zool. Atlas*, iii. 1829, 17; *D'Orb. Mol. Cuba*, 85; *Sow. Gen.* tab.

Criseis, *Forbes, Rep. Brit. Ass.* 132, 1844.

Crisia, *Menke, Ziet. Mol.* 1844, 72, not *Lamouroux*.

Cleodora c., *Blainv. Mon. Moll.* 1825; *Philippi, Sicil.* ii. 72.

Pleuropus, *Gray, Syn. B. M.* 1841, 85, not *Esch.*

Hyalæa sp., *Quoy & Gaim.*

The French generic name of Rang has been very generally adopted in the place of his Latin one, as in one or two other genera.

1. STYLIOLA SUBULA.

Shell glossy, elongated, slightly inflated, acute at the apex; aperture cordiform, beaked.

Hyalæa subula, *Quoy & Gaim.* 1828; *D'Orb. Voy. Am. Mer. Moll.* 119, t. 8, f. 15—19.

Cleodora subula, *Quoy & Gaim. Ann. Sc. Nat.* x. 233, t. 8, f. 1—3; *Rang, Ann. Sc. Nat.* xiii. 1828, t. 18, f. 1; *D'Orb. Moll. des Canaries*, 31; *Desh. in Lamk. Hist.* ed. 2, vii. 432.

Creseis conica, *Eschsch. Zool. Atlas*, iii. t. 15, f. 3, 1831.

Creseis spinifera, *Rang. Ann. Sc. Nat.* xiii. t. 17, f. 1 (t. 18, f. 1); *Quoy & Gaim. Voy. Ast.* ii. 382, t. 27, f. 15, 16, 44; *Sow. Gen.* f. 4; *Desh. in Lamk. Hist.* ed. 2, vii. 432; *Cantraine, Mem.* 31, t. 1, f. 11.

Creseis subula, *D'Orb. Ram. Sagra Hist. Cuba Moll.* 85.

Cleodora spinifera, *Philippi, Sicil.* ii. 72; *Desh. in Lamk. Hist.* ed. 2, vii. 432.

Cleodore alene, *Voy. Bonite Moll.* t. 6, f. 3—9.

a—y. Shells. Sicily. Presented by A. Melly, Esq.

2. STYLIOLA VIRGULA.

Shell elongate, somewhat cylindrical, apex conical, very acute, arched, tinged with purple, everywhere glossy, smooth and very shining; aperture circular, simple.

Creseis virgula, *Rang, Ann. Sc. Nat.* xiii. 17, f. 2, 1828; *Icon. Regn. Anim. Moll.* t. 4, f. 9; *D'Orb. Ram. Sagra Hist. Cuba Moll.* 86.

Hyalæa virgula, *D'Orb. Voy. Am. Mer. Moll.* 121, t. 8, f. 26—28.

Cleodora virgula, *D'Orb. Moll. des Canaries*, 31; *Desh. in Lamk. Hist.* ed. 2, vii. 433.

Cleodore virgule, *Voy. Bonite Moll.* t. 6, f. 18, 22, 25.

Creseis unguis, *Eschsch. Zool. Atlas*, iii. t. 15, f. 4, 1831.

C. cornucopia, *Eschsch. Z. A.* iii. t. 15, f. 5, 1831.

C. caligula, *Eschsch. Z. A.* iii. t. 15, f. 6, 1831.

Hab. Atlantic and Pacific Oceans.

3. *STYLIOLA CORNIFORMIS*.

Shell elongate, conical, rounded, smooth, diaphanous; apex very acute, horn-like; mouth circular; lips equal.

Hyalæa corniformis, *D'Orb. Voy. Am. Mer. Moll.* 120, t. 8, f. 20—23.

Creseis corniformis, *D'Orb. Ram. Sagra Hist. Cuba Moll.* 87.

Hab. Atlantic Ocean.

4. *STYLIOLA STRIATA*.

Shell elongate, conical, ovate, inflexed, transversely striated, diaphanous, lucid, brittle, whitish; tip blunt; mouth and lips acute, equal.

Creseis striata, *Rang, Ann. Sc. Nat.* xiii. t. 17, f. 2, 1828; *D'Orb. Ram. Sagra Hist. Cuba Moll.* 87; *Desh. in Lamk. Hist.* ed. 2, 433; *Cantraine. Mem.* 32, t. 1, f. 10.

Hyalæa striata, *D'Orb. Voy. Am. Mer. Mol.* 122, t. 8, f. 23—25.

Cleodora striata, *Philippi, Sicil.* ii. 72; *Desh. in Lamk. Hist.* ed. 2, vii. 433.

Cleodore striée, *Voy. Bonite Moll.* t. 6, f. 1—4.

Creseis compressa, *Esch. Zool. Atlas*, iii. t. 15, f. 7, 1831.

Hab. Atlantic Ocean and Indian Seas.

5. *STYLIOLA RECTA*.

Shell very long, needle-like, conical, slightly bent, smooth, diaphanous, shining, brittle, whitish; apex acute, aciculate. Mouth circular.

Styliola recta, *Lesueur, in Blainv. Mon. Malac.* 1825.

Creseis aciculata, *Rang, Ann. Sc. Nat.* xiii. t. 17, f. 6, 1828; *D'Orb. Ram. Sagra Hist. Cuba Moll.* 88; *Desh. in Lamk. Hist.* ed. 2, vii. 434.

Hyalæa aciculata, *D'Orb. Voy. Am. Mer. Moll.* 123, t. 8, f. 29—31.

Creseis clava, *Rang, Ann. Sc. Nat.* xiii. t. 17, f. 5, 1828.

Cleodora clava, *Desh. in Lamk. Hist.* ed. 2, vii. 433.

Cleodora aciculata, *D'Orb. Moll. Canar.* 31; *Philippi, Sicil.* ii. 72; *Desh. in Lamk. Hist.* ed. 2, vii. 434.

Cleodore aciculée, *Voy. Bonite*, t. 6, f. 10, 17, t. 11, anat.

Creseis acus, *Eschsch. Zool. Atlas*, iii. t. 15, f. 2, 1831.

? *Cleod. zonata*, *Philippi, Sicil.* ii. 72, from *Chiage*, t. 82, f. 9, ined.

a—r. Shells. Sicily. Presented by A. Melly, Esq.

6. *STYLIOLA TENUIS*.

Creseis tenuis, *Wahl.*

Fossil.

7. *STYLIOLA? VENTRICOSA*.

Sheath straight at the back, slightly ventricose in front, tapering to a point, nearly smooth, with faint sloping lines of growth and a strong longitudinal furrow.

Creseis ventricosa, *Sharp, Quart. Jour. Geol. Soc.* ii. 314, t. 13, f. 3.

Fossil. Wenlock Flag-stone, Wales.

8. *STYLIOLA? OBTUSA*.

Sheath short and conical, sides slightly curved towards a blunt point, smooth (?), with a longitudinal furrow.

Creseis obtusa, *Sharp, l. c.* 314, t. 13, f. 4.

Fossil. Wenlock Rock, Wales.

9. *STYLIOLA? GRACILLIMA*.

Sheath very long, straight and slender, tapering gently to a point.

Creseis gracillima, *Sharp, l. c.* 314, t. 13, f. 5.

Fossil. Wenlock Rock, Wales.

10. *STYLIOLA? PRIMÆVA*.

Shell very long, linear, dilated towards the oral extremity, smooth or with indistinct traces of longitudinal grooves.—*Forbes*.

Sheath long, regularly tapering, smooth, with one (or more) longitudinal groove.—*Sharp*.

Creseis? primæva, *Forbes, Quart. Jour. Geol. Soc.* 1845, i. 146, f. 1;
Sharp, Quart. Jour. Geol. Soc. ii. 314, t. 13, f. 2.

Fossil. Palæozoic Rock, Denbighshire.

11. *STYLIOLA? SEDGWICKII*.

Shell cylindrical, tapering, linear, marked with very numerous, fine, regular, transverse striæ; aperture dorsally angular.

Creseis? Sedgwicki, *Forbes, Quart. Jour. Geol. Soc.* 1845, i. 146, f. 2.

Fossil. Palæozoic Rock, Denbighshire.

7. THECA.

Shell fossil.

Theca, Forbes, *Quart. Jour. Geol. Soc.* ii. 314, t. 13, 1846; Leonard & Bronn, *Jahrb.* 1847, 634.

1. THECA FORBESII.

Sheath nearly flat behind, rounded in front, conical, and tapering to a point; aperture an obtuse-angled triangle, with the angles rounded off; surface finely striated, arched parallel to the edge of the mouth.

Theca Forbesii, Sharp, *Quart. Jour. Geol. Soc.* ii. 314, t. 13, f. 1.

Fossil. Ludlow Rock, middle part Kendal.

a. Fossil. Presented by S. Woodward, Esq.

2. THECA LANCEOLATA.

Theca lanceolata, Morris.

Fossil. Palæozoic Rocks, New South Wales.

8. CONULARIA.

Shell quadrangular, with a longitudinal groove at each angle; sides regularly transversely striated. *Fossil.*

Conularia, Muller, in Sow. *Mon. Conch.* iii. t. 108, 1818, 1821, t. 260; Brown, *Leth.* 97, 1837; Blainv. *D. S. N.* xxxii. 193, 1824; *Malac.* 377, 622; *Flem. B. A.* 240, 1828; Sow. *Man.* ed. 2, 119; D'Archiac & De Verneuil, *Trans. Geol. Soc.* vi. 325, 1842; D'Orb. *Bull. Geol. France*, xiv. 563; Austin, *Ann. and Mag. N. H.* xv. 407, 1845; Leon. & Bronn, *Jahrb.* 1843, 639.

Sowerby, when he first described this genus, regarded it as allied to *Nautilus*. Fleming keeps it in the same situation. Blainville placed it with the *Orthocera*. Hœninghaus showed, in 1839, that it had no chambers, and Messrs. D'Archiac and De Verneuil referred it to *Pteropoda*. D'Orbigny formerly (*Voy. Amer. Merid. Moll.* 119, note) thought it was a *Pteropod*, but more lately he has regarded it as a *Heteropod*. I have sometimes thought it might be related to *Asterias*: it is placed here with great doubt.

The following species have been regarded as distinct:—

1. CONULARIA BRONGNIARTI.

Conularia Brongniarti, *D'Archiac & De Verneuil, Trans. Geol. Soc.* vi. 353, t. 31, f. 6, 1842.

C. calamitacea, *Sandb. in Bronn, Jahrb.* 1848, 18, t. 1, f. 9.

2. CONULARIA CANCELLATA.

Conularia quadrisulcata, *Sow. Mon. Conch.* iii. 107, t. 290, f. 3 (only); *in Murch. Silur. Syst.* ii. 626, t. 12, f. 22, *a*; *Vern. Bull. Geol.* 1840, xi. 177?; *Portl. Rep.* 393, t. 29, *a*, f. 3.

C. Sowerbyi, *Troost, Rep. Tennessee*, 1840, 53, not *Deifr.*

C. cancellata, *Sandb. in Bronn, Jahrb.* 1847, 20, t. 1, f. 11.

a, b. Fossil.

3. CONULARIA PYRAMIDATA.

Conularia pyramidata, *Hoehn. Goldfuss in Dechen, Handl. Geol.* 538, 1832; *Bronn, Leth.* 1284.

C. quadrisulcata, *Bronn, Leth.* 97, t. 1, f. 12.

C. curvata, *Sandb. in Jahrb.* 1847, 23.

4. CONULARIA QUADRISULCATA.

Conularia quadrisulcata, *Miller, MSS.*; *Sow. Mon. Conch.* iii. 107, t. 260, f. 4 (only); *Geol. Trans.* v. 422? 492, t. 40, f. 2, *c*.

C. tubericosta, *Sandb. in Jahrb.* 1847, 21.

5. CONULARIA ACUTA.

Conularia acuta, *Roe, Hartz.* 36, t. 10, f. 12, var. f. 13.

C. ———, n. s., *Sandb. in Bronn, Jahrb.* 1845, 441.

C. carinata, *Sandb. in Bronn, Jahrb.* 1847, 14, t. 1, f. 2.

6. CONULARIA BUCHII.

Conularia Buchii, *Eichw. Silur.* 103.

C. Buchi, *Bronn, Index.*

7. CONULARIA SOWERBYI.

Conularia Sowerbyi, *Deifr. in Blain. Malac.* 377, t. 14, f. 2, *b, e*; *Verneuil in Murchison's Russia*, ii. 348.

C. crenisulcata, *Sandb. in Bronn, Jahrb.* 1847, 19, t. 1, f. 10.

8. CONULARIA CURTA.

Conularia curta, *Sandb. in Bronn, Jahrb.* 1847, 14, t. 1, f. 1.
C. quadrisulcata, *Hist. Leth. Suec.* i. 30, t. 10, f. 5, not Sow.

9. CONULARIA DEFLEXICOSTATA.

Conularia quadrisulcata, *Sandb. in Jahrb.* 1849, 401, not Sow.
C. deflexicostata, *Sandb. in Jahrb.* 1847, 16, t. 1, f. 6.
C. ———, n. s., *Sandb. in Jahrb.* 1844, 175.

10. CONULARIA ELONGATA.

Conularia elongata, *Portl. Rep.* 393, t. 29, a, f. 2.
C. pectinicostata, *Sandb. in Jahrb.* 1847, 17, t. 1, f. 7.

11. CONULARIA GEROLSTEINENSIS.

Conularia Gerolsteinensis, *Arch. & Verneuil, Trans. Geol. Soc.* vi. 352, t. 31, f. 5.
C. tenuistriata, *Sandb. in Jahrb.* 1847, 15, t. 1, f. 3.

12. CONULARIA GERVILLEI.

Conularia Gervillei, *Arch. & Verneuil, Trans. Geol. Soc.* vi. 351, t. 29, f. 4.
C. tuberosa, *Sandb. in Jahrb.* 1847, 22.
 Var. ? *C. subparallela*, *Sandb. in Jahrb.* 1847, 16, t. 1, f. 4.

13. CONULARIA IRREGULARIS.

Conularia irregularis, *Kon. Carb.* 496, t. 45, f. 2.
C. quadrisulcata, *Kon. in D'Omal. Geol.* 516.
C. latisulcata, *Sandb. in Jahrb.* 1847, 16, t. 1, f. 5.

14. CONULARIA ORNATA.

Conularia ornata, *Arch. & Verneuil, Trans. Geol. Soc.* vi. 352, t. 29, f. 5.
C. serrata, *Sandb. in Jahrb.* 1847, 18, t. 1, f. 8.

** *Subcylindrical.*

15. CONULARIA ?? TERES.

Conularia teres, *Sow. Mon. Conch.* iii. 108, t. 260, f. 1, 2.

FAM. II. TRIPTERIDÆ.

Body elongate, cylindrical, divided into two distinct parts; the front part with two large lateral wings, united below to a flat central portion; the abdominal part cylindrical.

Shell cylindrical or subangular near the month, ending in an acute point, separated from the anterior cavity by an entire transverse septum; the tip is often deciduous in the adult.

Cuvieridæ, *Gray, Syn. Brit. Mus.* 1840; *Proc. Zool. Soc.* 1848, 204; *Agassiz, Nomencl.*

Hyalæidæ (part), *Cantraine, Moll. Medit.* 31, 1841.

Hyalidæ (part), *D'Orb. Moll. Cuba*, i. 70, 89, 1841.

"Intermediate between Cleodora and Pneumodermon," *D'Orb. Cuba*, 89.

1. TRIPTERA.

Triptera (Triptère), *Quoy & Gaim. Voy. Uranie*, 416, 1824 (wanting the shell); *Ann. Sci. Nat.* 1825, vi. 76, t. 2; *Blainv. Mal.* 478.

Cleodora c. Tripter, *Rang, Man.* 116, 1829; *Poit. & Mich. Gal.* i. 45.

Tripteris, *Menke, Syn. ed.* 2, 9, 1830, not *Lesson*.

Tripteres, *Gray, Syn. B. M.* 1842, 92.

Cuvieria (columnella), *Rang, Ann. Sci. Nat.* 1827, 320; *Isis*, 1829, 319; *Mon. Moll.* 116, 1829 (not *Decandolle* nor *Peron*); *Deshayes, Ency. Meth.* iii. 35, 1830; *Lamk. Hist.* ed. 2, vii. 430; *Guerin, Icon. Moll.* ii. 1843; *Bronn, Leth.* 985, 1838; *Sow. Gen. Shell.* t. ; *Conch. Man.* ed. 2, 130, 278, 1842; *Menke, Syn. ed.* 2, 9, 1830; *Benson, Jour. Asiat. Soc. Bengal*, 1835, 698; *Cuvier, Reg. Anim.* ed. 2, 1830; *Cantraine, Malac. Medit.* 31, 1841; *D'Orb. Moll. Cuba.* i. 70, 89; *Voy. Amer. Merid.* 124; *Desh. in Lamk. Hist.* ed. 2, vii. 435.

Cleodora (obtusa), part, *Quoy & Gaim. Voy. Uran.* t. 6.

Cresis (obtusa), part, *Rang, Ann. Sci. Nat.* xiii. 1828.

1. TRIPTERA COLUMNELLA.

Body glossy, anteriorly yellow coloured; wings oblong, anteriorly orange coloured. Shell elongate, cylindrical, swollen posteriorly, terminated anteriorly by an ovately transverse aperture, of a glossy appearance.

Cuvieria columnella, *Rang, Ann. Sc. Nat.* xii. 323, t. 45, B. f. 1—8, 1827.

Cuvieria columella, *D'Orb. Voy. Am. Mer. Moll.* 125, t. 8, f. 35—39; *Guerin, Icon. Reg. An. Moll.* t. 4, f. 10.

Cleodora obtusa, *Quoy & Gaim. ? Voy. Uran.* t. 6, f. 5.

Creseis obtusa, *Rang, Ann. Sc. Nat.* xiii. t. 17, f. 4, 1828.

Cuvieria obtusa, *D'Orb. Ram. Sagra Hist. Cuba Moll.* 89; *Moll. des Canar.* 32 (1839).

Cuvierie colonnette, *Voy. Bonite Moll.* t. 12, anat.

Cleodora columnella, *Desh. in Lamk. Hist.* ed. 2, vii. 435.

a—c. Coast of Brazil. Presented by Dr. Sinclair, R.N.

2. TRIPTERA ROSEA.

Body rose-coloured. Shell ———?

Triptera rosea, *Quoy & Gaim. Voy. Uranée*, 416, t. 66, 1824; *D'Orb. Voy. Amer. Merid.* 126, note; *Ann. Sci. Nat.* 1825, 76, t. 2, f. 5.

Hab. Port Jackson.—*Quoy*.

3. TRIPTERA ORYZA.

Shell smooth, shining, depressed, cylindrical; sides near the septum rather more ventricose; apex elongate, acute. Length $\frac{4}{10}$ ths of an inch.

Cuvieria oryza, *Benson, Jour. Asiat. Soc. Bengal*, 1835, 698.

Hab. Tropical Indian Ocean.—*Benson*.

3. TRIPTERA ASTESANA.

Shell elongately cylindrical, truncated at the posterior extremity, terminated anteriorly with an oblique, somewhat triangular aperture, polished internally and externally, shining.

Cuvieria Astesana, *Rang. Ann. Sci. Nat.* xvi. 498, t. 19, f. 2.

Cleodora Astesana, *Desh. in Lamk. Hist.* ed. 2, vii. 434.

Fossil in Astesan.

FAM. III. CYMBULIADÆ.

Animal globular or ovate.

Fins 2, horizontal, opposite, on each side of the mouth, with a small intermediate lobe.

Shell cartilaginous, slipper-shaped, rarely wanting.

Cymbuliadæ, *Gray, Syn. Brit. Mus.* 1840; *Proc. Zool. Soc.* 1847, 204; *Agassiz, Nomen.*

Cymbulidæ, *Cantraine, Malac. Medit.* 33, 1841.

Pterobranchia, *b, Gray, Lond. Med. Rep.* 1821, 235.

Sepiacea, part, *Oken, Leherb.* 1815.

Hyalea, part, *Ferussac, Fab. Syst.* 25, 1821.

Hyaleacea, part, *Menke, Syst.* 4, 1828, ed. 2, 9, 1830.

Hyalidæ, part, *D'Orb. Moll. Cuba*, i. 70, 1841.

Synopsis of the Genera.

1. CYMBULIA. Shell slipper-shaped.
2. EURIBIA. Shell globular, membranaceous. Mouth round, spread out.
3. PSYCHE. Shell none? Body globular. Fins separate, lateral.
4. TIEDEMANNIA. Shell none? Fins forming a broad expanse.

1. CYMBULIA.

Shell gelatino-cartilaginous, oblong, slipper-shaped, covered with a thin, scarcely visible membrane; mouth elongate, truncated in front.—*Fins* large, rounded, with a small, elongate, intermediate lobe.

Cymbulia (proboscidea), *Peron & Lesueur, Ann. du Mus.* xv. 66, 1810; *Lamk. Extr. du Cour.* 1812; *Hist.* vi. 292, ed. 2, vii. 437; *Cuvier, Reg. Anim.* ii. 1817, ed. 2, 1830; *Schweigger, Naturg.* 750, 1820; *Deshayes, Ency. Meth.* iii. 42; *Ferussac, Tabl. Syst.* 25, 1821; *Rang, Man.* 113, 1829; *Blainv. Malac.* 481, 1825; *Latreille, Fam. Nat.* 1825; *Quoy & Gaim. Voy. Astrol.* ii. 373, 1832; *Van Beneden, Nouv. Mem. Acad. Brux.* xii.; *Menke, Syn.* 4, ed. 2, 8; *Zeitsch. f. Malak.* 1844, 77; *Cantraine, Malac. Medit.* 33; *D'Orb. Moll. Cuba*, i. 70, 1841; *Gray, Lond. Med. Rep.* 1821; *Scacchi, Antol. de Sci. Nat.* i. 72, 1841; *Sowerby, Gen. Shell.* t.

1. CYMBULIA PROBOSCIDEA.

Shell elongate, oblong, with several dentate longitudinal ridges.

Cymbulia proboscidea, *Peron & Lesueur, Ann. Mus.* 1810, xv. t. 3, f. 10—12, animal reversed; *Rang. Man.* 113.

Cymbulia Peronii, *Cuvier, Reg. Anim.* ii. 380; *Lamk. Hist.* ed. 2, vii. 438; *Cantraine, Mem.* 34; *Philippi, Sicil.* i. 102, ii. 72.

Cymbulie, *Blainv. Dict. Sci. Nat.* t. 59, f. 2; *Man. Mulac.* t. f. 2, animal reversed.

a. Shell, dry. Mediterranean.

b. Animal and shell, in spirits. Mediterranean.

c. Animal and shell, in spirits. Sicily. Presented by A. Melly, Esq.

2. CYMBULIA OVATA.

Shell ovate, globose, subcartilaginous, soft, lucid, spined; wings lanceolate, reticulated, white.

Cymbulia ovata, *Quoy & Gaim. Voy. Astrol.* ii. 373, t. 27, f. 25—30; *Desh. in Lamk. Hist.* ed. 2, vii. 438.

Hab. Amboina.

3. CYMBULIA RADIATA.

Shell unknown; wings transverse, rounded, separated by a point in the middle, radiated with blackish points.

Cymbulia radiata, *Quoy & Gaim. Voy. Astrol. Moll.* ii. 375, t. 27, f. 33, 34; *Desh. in Lamk. Hist.* ed. 2, vii. 438.

Hab. Amboina.—*Quoy*.

4. CYMBULIA PUNCTATA.

Very small; wings ovately rounded, white, pointed with red.

Cymbulia punctata, *Quoy & Gaim. Voy. Astrol.* ii. 377, t. 27, f. 35, 36.

Hab. New Holland.

5. CYMBULIA NORFOLKENSIS.

Shell somewhat cartilaginous, ovate, spined, white; wings narrow, bilobed, connected together by a long point.

Cymbulia Norfolkensis, *Quoy & Gaim. Voy. Astrol.* ii. 376, t. 27, f. 31, 32; *Desh. in Lamk. Hist.* ed. 2, vii. 439.

Hab. South Seas, Norfolk Island.

2. EURIBIA.

Animal globular; wings 2, horizontal, opposite on each side of the mouth, and with a small intermediate lobe.—*Shell* cartilaginous, membranaceous, thin, transparent, regular, shaped like a hood; mouth round, spread out.

Euribia (hemispherica), *Rang*, *Ann. Sci. Nat.* 1827, xii. 328; *Man. Moll.* 117; *Desh. Ency. Meth.* iii. 121; *Oken*, *Isis*, 1829, 319; *Guerin*, *Iconog. Moll.* 12.

Eurybia (hemispherica), *Menke*, *Syn.* ed. 2, 9, 1830 (not *Hubner*, 1806, nor *Illiger*, nor *Boisduval*, nor *Eschscholtz*, 1829).

D'Orbigny observes he has never found the genera *Psyche* and *Euribia* of Rang; and he further remarks, "De petit godets absolument semblables a la coquille des *l'Euribie*, et transparens comme le sont les coquilles des *Pteropodes*, nous parurent être, pendant quelque temps la Coquille de ce dernier genre, mais nous avons reconnu depuis que ce n'était que la partie cephalique d'un *Crustacé*, qui se detache avec beaucoup de facilité." *Voy. Amer. Merid. Moll.* 75.

1. EURIBIA HEMISPHERICA.

Animal white, rather transparent; fins oval, narrow at the base; mouth black; viscera brown. *Shell* very thin, flexible, spherical, yellow; mouth horizontal, very large.

Euribia hemispherica, *Rang*, *Ann. Sci. Nat.* xii. (1827), 329, t. 45, B, f. 9, 1011; *Guerin*, *Icon. Moll.* 12.

Hab. Atlantic Ocean.

2. EURIBIA GAUDICHAUDI.

Euribia de Gaudichaud, *Eydoux & Souleyet*, *Voy. Bonite Moll.* t. 14, f. 1, 6, not described.

Hab.

3. PSYCHE.

Body free, membranaceous, without any distinct head; tentacles none; wings 2, lateral, elongate, without any intermediate lobe.—*Shell* none (or very thin, membranaceous?)

Psyche, *Rang*, *Ann. Sci. Nat.* 1825, v. 284; *Man. Moll.* 117 (not *Linn.* 1735); *Isis*, 1827, 749; *Cuvier*, *R. A.* ed. 2; *Guerin*, *Icon. Moll.* 11; *Gray*, *Syn. B. M.* 1842; *Proc. Zool. Soc.* 1848.

1. PSYCHE GLOBULOSA,

Psyche globulosa, Rang, *Ann. Sci. Nat.* 1825, v. 284, t. 7, f. 1;
Man. Moll. 117; *Guerin, Icon. Moll.* 11.

Hab. Isle St. Pierre, near Newfoundland.

4. TIEDEMANNIA.

Body gelatinous, transparent; neck elongated; tentacula 2; wings very large, cuneate, forming a disk; mouth below, surrounded by the lips.—*Shell* none.

Tiedemannia, *Chiage in Van Beneden, Nov. Mem. Acad. Brux.* xii. 21, 1839; *Chiage, Anim. Invert. Sicil.* i. 96, 1841; *Krohn. Arch. Naturg.* 1844, 324, t. 9, f. a, 1847, 36, t. 2, f. A; *Philippi, Sicil.* ii. 214; *Zeitsch. fur Mol.* 1844, 204.

Cymbulia sp., *Beneden, Mem. Ac. Brux.* xii.

? *Gleba* sp., *Forsk. Faun. Arab.* t. 43, D.

Differs from *Cymbulia* in the mouth being prolonged and having no shell.

1. TIEDEMANNIA NEAPOLITANA.

Tiedemannia Neapolitana, *Chiage, Anim. Invert.* 96, t. 32, f. 4, 7, 1841; *Philippi, Sicil.* ii. 215, 1844.

Tiedemannia creniptera, *Krohn in Erichs. Arch. Naturg.* 1844, 324, t. 9, f. a; *Erichs. Arch. Naturg.* 1847, 36, t. 2, f. A.

Cymbulia . . . *Beneden, Nov. Mem. Acad. Brux.* xii.; *Ontologia di Sci. Nat. Napoli*, 1841, 81; *Isis*, 1843, 636; *Zeitsk. f. Malak.* 1844, 78.

Hab. Naples.

B. *Body and shell spiral. Operculum distinct, spiral.*

FAM. IV. LIMACINIDÆ.

Body spiral, sinistral; fin without any intermediate foot-like lobe.
Shell spiral, sinistral, with the mouth angularly produced on the columella side.

Operculum distinct, spiral (rarely wanting??).

- Limacinidæ*, Gray, *Syn. Brit. Mus.* 1840; *Proc. Zool. Soc.* 1847, 203.
Limacinadæ, Forbes & Hanley, *Brit. Moll.* ii. 379, 1849.
Pterobranchia, a, Gray, *Lond. Med. Rep.* 1821, 235.
Hyaleacea (part), Menke, *Syn.* 4, 1828, ed. 2, 8, 1830.
Hyaleæ (part), Rang. *Mon.* 113, 1829.
Atlantarum (part), Deshayes, *Ency. Meth.* iii. 343, 1830.
Hyalidæ (part), D'Orb. *Moll. Cuba*, i. 70, 1841.
Limacinæ (Les Limacines), part, Feruss. *Fab. Sys.* 25, 1821 (not Swainson, nor Blainv.)
Pterobranchia (part), Gray, *Lond. Med. Rep.* 1821.
Procephala (part), Lat. *Fam. Nat.* 1825.
Atlantidæ (part?), Gray, *Proc. Zool. Soc.* 1848, 149.

These animals have been confounded, by D'Orbigny and others, with *Atlanta*, which has a compressed foot with a sucker on the hinder edge, a distinct head, and no lateral fins.

Eschscholtz's figure of *Steira* (*Isis*, 1825, t. 5, f. 3) appears to combine the two fins of *Limacina* with the head, tentacles, eyes, and shell of *Atlanta*. It is most probably only a bad figure of that genus as it has not been observed by any succeeding zoologist. He placed it in the same family with *Limacina*.

1. LIMACINA.

Animal elongate, spiral; head indistinct; mouth at the union of the two fins and intermedial lobe, with two small labial swellings; fins 2, elongate, rounded, united at their base by an intermediate semicircular lobe, bearing an *operculum*; mantle large, open in front, forming a large gill cavity; gills in the mantle; vent on right side of mantle.—*Shell* univalve, spiral, sinistral, containing the animal; operculum vitreous, thin, transparent, spiral, of few whorls with a central muscular scar. (See D'Orb. *Amer. Merid.* t. 12, f. 24 and 39).

Limacina, (*helicalis*), Cuvier, *Reg. Anim.* iii. 1817; Lamk. *Hist.* vi. 290, 1819, ed. 2, vii. 435; Schweigger, *Naturg.* 750, 1820; Gray, *Lond. Med. Rep.* 1821; Ferussac, *Fab. Syst.* 25, 1821; Menke, *Syn.* 4, 1828, ed. 2, 8, 1830; D'Orb. *Moll. Cuba*, i. 70, 1841; Rang, *Man.* 113, 1829; Eschs. *Isis*, 1825, 735; Desh. *E. M.* iii. 343; not Hartmann, 1821; nor Wiegmann, 1832; nor Gray; nor Sowerby, *Genera*, fig. so named is *Atlanta*.

- Spiratella* (*limacina*), *Blainv. Dict. Sci. Nat.* xxxii. 284, 1825;
Man. Malac. 494, 1825; *Desh. Ency. Meth.* iii. 471; *Sow. Conch. Man.* 100, ed. 2, 263.
- Kronjacht*, *Oken, Lehrb. Nat.* 1817.
- Argonauta* sp., *O. Fab.*
- Clio* sp., *Phipps*; *Gmelin, S. N.*
- Heterofusus* (*retroversus*), *Fleming, Brit. Anim.* 498, 1833; *Gray, Proc. Zool. Soc.* 1848, 149.
- Peracle* (*Flemingii*), *Forbes, Rep. Brit. Ass.* 1843, 132, 249.
- Scæa* (*retroversus*), *Philippi, Moll. Sicil.* ii. 164, 1844.
- Helicophora*, *Gray, Syn. B. M.* 1840, 1844, 59.
- Atalanta* (sub-genus *Heliconoides*), *D'Orb. Voy. Amer. Merid. Moll.* 174, 184.
- Spirialis* (*Les Spiriale*), *Eydoux & Souleyet, Rev. Zool. Soc.* 1840; *Cuvier*, 235; *Weigm. Arch.* 1841, ii. 265; *Gray, Proc. Zool. Soc.* 1847, 203; *Loven, Ind. Moll. Scand.* 4, 1846; *Forbes & Hanley, Brit. Moll.* ii. 382.
- Heliconoides*, *D'Orb.*; *Gray, Proc. Zool. Soc.* 1848, 149.
- Limacina* sp., *Benson, Jour. Asiat. Soc. Calcut.* 1835, 176.
- Campylonaus*, *Gray, Proc. Zool. Soc.* 1848, 149, not *Benson*.
- Fusus* sp., *Fleming, Wern. Trans.* iv. 498; *Brit. Anim.* 349.

Limacina, so well described by O. Fabricius and other arctic zoologists, appears to have been only known to Swedish, Danish and English naturalists. Møller, who well knew the type, has lately added to the genus a turritid species. These two species are the giants of the genus. The more minute species of the Atlantic and Pacific Oceans have been described as a different genus, under various names, by several authors. D'Orbigny thought *Limacina* (*arctica*) might be a badly preserved *Atlanta* (*Voy. Amer. Merid. Moll.* 75): he first noticed, figured and described the smaller species (*Voy. Amer. Merid.* t. 12, f. 24), and also first figured the operculum, but he thought some species were without any; and though he described the colour of the animal, he appears never to have seen them expanded, as he regards the genus as a section of *Atlanta*, which has a very different kind of animal. I have not been able to find the operculum on our specimens of the arctic species, but they are in a very broken condition. Chemnitz, Fleming and Philippi arranged the more turritid species with or near the *Fusi* or *Pleurotomæ*: they differ from the shell of the very young *Carinariæ Atlantæ* (see *D'Orb. Amer. Merid. Moll.* t. 11, f. 7—9) in the shell being reversed.

Limacina arctica occurs in immense quantities in the North Seas, but rarely out of the sight of land.—*Scoresby*.

* *Spire subglobose, depressed; axis umbilicated.* *Limacina.*

1. LIMACINA ARCTICA.

Shell subglobose, subdiscoidal; spire slightly raised; whorls 6, last large, with a very obscure keel; axis umbilicated, keeled on the edge. Diam. $\frac{2}{3}$ ths of an inch.

Limacina arctica, *Loven*, *Moll. Scand. Kong. Vetensh. Akad.* 1847, 188, t. 3, f. 6.

Argonauta Argo, *Muller*, *J. Dan. Prod.* 2877.

Clione Helicina, *Pallas*, *Spic.* x. 38.

Clio helicina, *Gmelin*, *S. N.* 3149; *Phipps*, *Voy. North*, 195; *Roissi*, *Buff. Moll.* v. 59? *Scoresby*, *Arct. Reg.* i. 543, t. 16, f. 11, 12, not good.

Limacina arctica, *Sow. Man. f.* from *Scoresby*; *Leach*, in *Ross Voy. Baffin's Bay*, i. 172, 1819.

Limacina helicalis, *Lamk. Hist.* No. 1, ed. 2, vii. 436; *Sow. Gen.* f. 3.

Limacine, *Cuvier*, *Reg. Anim.* ii. 380.

Argonauta arctica, *O. Fab. F. Groenl.* 386; *Ross*, *Voy. South and Antarct. Reg.* ii. 143?

Spiratella limacina, *Blainv. D. S. N.*; *Malac.* t. 48, f. 5, from *Scoresby*.

Spiratella arctica, *Desh. Ency. Meth.* iii. 971.

a. b. Animal, in spirits. N. Sea. Arctic Expedition. Presented by Colonel Sabine.

c, d. Animal, in spirits. Greenland. From Mr. Moller's collection.

2. LIMACINA INFLATA.

Shell very thin, transparent, vitreous, discoidal, sinistral; axis umbilicated; spire scarcely exceeding the last whorl; whorls 3, smooth, rather large, modified by the penultimate whorl, heart-shaped; peristoma disunited, nicked on each side, and with an elongated, strong, slightly arched beak in front; operculum glassy, very thin, transparent, few whorled.

Spirale rostrale, *Eydoux & Souleyet*, *Voy. Bonite Moll.* t. 15, f. 1—10.

Spiralis rostralis, *Eydoux & Souleyet*, *Rev. Zool. Soc. Cuvier*, 1840, 235.

? *Atlanta inflata*, *D'Orb. Voy. Amer. Merid.* t. 12, f. 16—19, not good.

3. LIMACINA JEFFREYSII.

Shell subdiscoidal, spire much depressed; whorls, three last large, rounded; lips very acute, mucronated.

Spirialis Jeffreysii, *Forbes and Hanley, Brit. Moll.* ii. 386.

Hab. British Channel. Coll. Mr. Jeffreys.

3. LIMACINA ROTUNDA.

Shell subdiscoidal, smooth, umbilicated; spire rather convex, slightly raised; last whorl moderately swollen; mouth moderate, roundish.

Atlanta (Heliconoides) rotunda, *D'Orb. Voy. Amer. Merid. Moll.* t. 12, f. 20—24.

Hab. Atlantic Ocean.

5. LIMACINA VENTRICOSA.

Shell globular, ventricose, thin, glassy, sinistral; axis largely umbilicated; spire conical, short; whorls 4, last swollen, much larger than the others; mouth large, oblique, angular; peristome sharp-edged, not united, forming an angular projection below the arched columella.

Spirialis ventricosa, *Eydoux et Souleyet, Rev. Zool.* 1840, 236; *Forbes and Hanley, Brit. Moll.* 385.

Spiriale ventre, *Eydoux et Souleyet, Voy. Bonite Moll.* t. 15, f. 11—16.

Atlanta Rangii, (*Atlantes de Rang*), *D'Orb. Voy. Amer. Merid.* t. 12, f. 25—28.

Var. smaller; umbilicus less open; whorls fewer; mouth more regular and less angular.—*Eydoux & Souleyet*.

Hab. Atlantic Ocean.

6. LIMACINA AUSTRALIS.

Shell turbinate, thin, brittle, sinistral, rather largely umbilicated; spire elevated, conical; whorls 6 or 7, separated by a deep suture; mouth oblique, irregularly quadrilateral, rather angular; peristoma not united; columella straight.

Spirialis australis, *Eydoux et Souleyet, Rev. Zool. Soc. Cuvier*, 1840, 237.

Spiriale australe, *Eydoux et Souleyet, Voy. Bonite Moll.* t. 15, f. 20—26.

Hab. Cape Horn.

**** Shell conical, turritid; spire elongate; axis unperforated.**
Heterofusus.

7. LIMACINA RETROVERSA.

Shell conical; whorls 4, last very ventricose, more than half the length of the shell.

Chemn. Conch. Cab. ix. 129, t. 113, 6972, 973?

Fusus retroversus, *Fleming, Wern. Mem.* iv. 498, t. 15, f. 2; *Brit. Anim.* 349; *Treat. Moll. Anim.* t. 12, f. 45; *Thorpe (Hanley), Brit. Man. Conch.* 201.

Heterofusus retroversus, *Flem. l. c.* 498.

Peracle Flemingii, *Forbes, in Thompson Rep. Brit. Ass.* 1843, 249; *Jeffreys, Ann. Nat. Hist.* xxx. 1847, 16.

? Scæa stenogyra, *Philippi, Moll. Sicil.* ii. 164, t. 25, f. 20.

? Peracle physoides, *Forbes, Rep. Brit. Ass.* 1843, 132.

Spirialis Flemingii, *Forbes & Hanley, Brit. Moll.* 384, t. 57, f. 4, 5.

Scæa retroversa, *Philippi, Sicil.* ii. 164, from *Fleming*.

Hab. North Sea.

a—d. North Sea. From Mr. Damon's collection.

8. LIMACINA TROCHIFORMIS.

Shell thin, glassy, very transparent, top-shaped, swollen, sinistral, unperforated; spire moderate, conical; whorls 5, rapidly decreasing in size, the last very large, swollen; mouth oblique, oval; columella smooth and slightly arched; fins moderate, rounded at the end.

Atlanta trochiformis, *D'Orb. Voy. Amer. Merid.* t. 12, f. 29—31.

Spirialis trochiformis, *Eydoux et Souleyet, Rev. Zool. Soc. Cuvier*, 1840, 237.

Spiriale trochiforme, *Eydoux et Souleyet, Voy. Bonite Moll.* t. 15, f. 27—34.

Var.? Shell rather more elongate; fins elongate, acute.

Hab. China.

9. LIMACINA MACANDREI.

Shell turritid, fusiform; whorls 5, gradually enlarging, last not so long as the spire; mouth elliptical, rather narrow.

? *Chemn. Conch. Cab.* ix. 128, t. 113, f. 971, broken.

? Turbo lunaris, *Gmel. S. N.* i. 3587, from *Chemn.*

? *Scæa lunaris*, *Philippi*, *Moll. Sicil.* ii. 164, from *Chemn.*

Spirialis *MacAndrei*, *Forbes & Hanley*, *Brit. Moll.* ii. 385, t. 57, f. 6, 7.

Hab. North Sea.

10. LIMACINA BALEA.

Shell turritid; whorls 7; spire prominent; apex acute.

Limacina balea, *Moller*, *Moll. Groenl.* 4.

Spirialis stenogyra, *Loven*, *Moll. Scand.* 4?

a, b. Animal, in spirits. Groenland. From Mr. Moller's collection.

11. LIMACINA BULIMOIDES.

Shell thin, diaphanous, glossy, elongate, not umbilicated, sinistral; spire high; whorls 6; apex acute; mouth irregular, quadrilateral, angular in front.

Atalanta bulimoides, *D'Orb. Voy. Amer. Merid.* t. 12, f. 36, 38 (not good).

Spirialis bulimoides, *Eydoux et Souleyet*, *Rev. Zool. Soc. Cuvier*, 1840, 238; *Forbes and Hanley*, *Brit. Moll.* ii. 386.

Spiriale bulimoide, *Eydoux et Souleyet*, *Voy. Bonite Moll.* t. 15, f. 35, 42.

Hab. Atlantic and Indian Oceans.

12. LIMACINA CLATHRATA.

Shell very thin, brittle, oblong, swollen, sinistral, not umbilicated, covered, regular, cancellated, longitudinal and transverse striæ; spire slightly elevated; whorls 3 or 4, last swollen, much larger than the others; suture deep; mouth large, elongate, strongly angular in front; columella smooth, arched.

Spiriale reseau, *Eydoux et Souleyet*, *Voy. Bonite Moll.* t. 15, f. 17—19.

Spirialis clathrata, *Eydoux et Souleyet*, *Rev. Zool. Soc. Cuvier*, 1840, 239.

Atlanta reticulata (*Atlantes en reseau*), *D'Orb. Voy. Amer. Merid.* t. 126, 32—35, and 39 operculum.

Hab. Atlantic and Pacific Oceans.

ORDER II. GYMNOSOMATA.

Body naked, without any shell.

Head distinct.

Wings 2 or 4, at the junction between the head and the body, with a central intermediate lobe or rudimentary foot.

Gills exterior.

Pteropodia oligoptera, part, *Rafin. Anal. Nat.* 1815.

Clionidia, *Rafin. Anal. Nat.* 1815.

Gymnosomata, *Blainv., Rang, Mann. Moll.* 117.

Gymnosoma, *Blainv. Malac.* 482, 1825.

Pterobranchia, § c, *Gray, Med. Repos.* 1821, 235.

Procephalis, *Latreille, Fam. Nat.* 1825.

Pneumodermi, *D'Orb. Moll. Cuba*, i. 70, 1841.

Les Clios, *Rang, Man. Moll.* 117.

Cliodinæ, *Menke, Syn.* 5, 1828.

Clioidæ, *Menke, Syn.* ed. 2, 9, 1830; *Wieg. Hand. Zool.* 517, 1842.

Clionina, *Bronn, Gesch. d. Naturg.* iii. 353.

Acephales, part, *Blainv. Bull. Soc. Phil.* 1814, 179.

FAM. V. CLIONEIDÆ.

Animal fusiform. Head with a series of conical prominences on each side. Wings 2, with a central foot-like appendage.

Clionidea, part, *Rafin. Anal. Nat.* 1815.

Clionea, *Oken, Lehrb.* 1815.

Cliones (Les Clios), *Ferussac, Tabl. Sys.* 25, 1821; *Rang, Man. Moll.* 117, 1829.

Clionidæ, *Gray, Syn. Brit. Mus.* 1840; *Proc. Zool. Soc.* 1847.

Cliodinæ, part, *Menke, Syn.* 5, 1828.

Clioidæ, part, *Menke, Syn.* ed. 2, 9, 1830; *Wieg. Handb. Zool.* 517, ed. 2, 545.

Mollusca nuda nageant, part, *Latr. Dict. Hist. Nat.* xxiv. 109, 1804.

Synopsis of the Genera.

1. CLIONE. Head indistinct. Tentacula distinct.

2. CLIODITA. Head distinct. Tentacula not apparent.

1. CLIONE.

Head indistinct; tentacula 6, conical, three on each side.—*Tooth* of lingual membrane, broad, convex behind, slightly two-lobed and denticulated in front; lateral teeth 12-12, simple, arched, rather swollen at the base, the outer ones gradually smaller.—*Loven*, l. c. t. 3, f. 4.

In swimming it brings the top of its fins almost in contact, first on one side and then on the other.—*Scoresby*, *Arct. Reg.* 544.

Clione, *Pallas*, *Spicil. Zool.* x. 28, 1774; *Gmelin*, *S. N.* ed. 13, 3148; *Moller*, *Ind. Moll. Groenl.* 4, 1842; *Rafin. Anal. Nat.* 1815.

Clio, *O. F. Muller*, *Zool. Dan. Prod.* 29, 1776 (not *Browne*, 1756); *O. Fab. Faun. Groen.* 334, 1780; *Brug. E. M.* i. 505, 1789; *Peron & Lesueur*, *Ann. du Mus.* 1810; *Lamk. Syst. Anim.* 62, 1801; *Ext. du Cours.* 1812; *Phil. Zool.* 1809; *Hist. A. S. V.* vi. 286, 1819, ed. 2, vii. 423; *Cuvier*, *Anal. Comp.* 1800; *Ann. Mus.* i. 242, 1802; *Ann. Mus.* 1804; *Reg. Anim.* 1817, ed. 2, 1830; *Blainv. Dict. Sc. Nat.* ix. 404; *Malac.* 482, 1825; *Rang, Man.* 118, 1829; *D'Orb. Moll. Cuba*, i. 70, 1841.

? *Amphirea*, *Rafin. Anal. Nat.* 1815, no character or type.

? *Dicroptera*, *Rafin. Anal. Nat.* 1815, no character or type.

1. CLIONE BOREALIS.

Gelatinous, pellucid, pale blue; mouth and end of the body scarlet out of water, hyaline; wings somewhat triangular; tail acute.

Ataursak, *Crantz*, *Groen.* 142.

See *Gottes Pferd*, *Adelung Gesch.* 410, t. 17, f. 18.

Clio papilionacea, *Pallas*, *Spic. Zool.* x. 28, t. 1, f. 18, 19.

Clio borealis, *Brug. E. M.* n. 1; *E. M.* t. 75, f. 3, 4; *Cuvier*, *Ann. du Mus.* i. t. 17; *Roissi*, *Buffon*, *Moll.* v. 68, t. 52, f. 1; *Lamk. Hist.* ed. 2, vii. 425; *Eschricht*, *Vidensk. Selsk. Nat.* 1838; *Leach*, in *Ross*, *Baffin Bay*, 122; *Loven*, *Ind. Moll. Scand.* i.; *Kong. Vet. Akad.* 1847, 188, t. 3, f. 4.

Clio retusa, *Muller*, *Zool. Dan. Prod.* 274, 2, not *Linn.*; *Fab. Faun. Groenl.* 334.

Clio Limacina, *Phips*, *Ellis*, *Zooph.* t. 15, f. 9, 10.

Clio Borealis or *C. Limacina*, *Scoresby*, *Arct. Reg.* i. 544, ii. 556, t. 16, f. 10, from life.

Clio Miquelonensis, Rang, *Ann. Sci. Nat.* 1825, v. 285, t. 7, f. 2 ;
Desh. in Lamk. Hist. ed. 2, vii. 425.

a—c. In spirits. Baffin's Bay. Presented by Colonel Sabine.
d—f. In spirits. Greenland. From Mr. Moller's collection.

2. CLIONE AUSTRALIS.

Fleshy, of a rose colour; wings lanceolate; tail compressed, bilobed.

Clio australis, Brug. *Ency. Meth.* n. 2. t. 75, f. 1, 2; Roissi, Buffon, *Moll.* v. 69; Lamk. *Hist.* ed. 2, vii. 425; Blainv. *Malac. Moll.* t. 46, f. 1, 2.

Hab. India.

3. CLIONE CAUDATA.

Clio à longue queue, Eydoux & Souleyet, *Voy. Bonite Moll.* t. 14, f. 17—21.

Hab.

Capt. Ross (*Antarctic Voy.* i. 169) mentions *Clio borealis* and *Argonauta arctica* as abundant between lat. 63° and 64° south: they are probably distinct from the arctic species.

2. CLIODITA.

Tentacula not apparent; head separated from the trunk by a contraction.

Cliodita (*Cliodit*), Quoy & Gaim. *Voy. de Freyc.* Zool. 413, 1824; *Isis*, 1827, 1012; *Ann. Sci. Nat.* vi. 74, t. 2, f. 825; Menke, *Syn.* ed. 2, 9, 1830.

Clio sp., Rang, *Man.* 118, 1829; Blainv. *Malac.* 483; *Desh. in Lamk. Hist.* ed. 2, vii. 426, 1836.

1. CLIODITA CADUCEUS.

Body elongated, blunt behind; head very small, hooded.

Cliodita caduceus, Quoy & Gaim. *Ann. Sci. Nat.* 1825, vi. 74, t. 2, f. 2; *Voy. Uranie*, t. 66; *Desh. in Lamk. Hist.* ed. 2, vii. 426.

Hab. Cape of Good Hope.

2. CLIODITA FUSIFORMIS.

Body fusiform, blackish; wings somewhat triangular, transparent, extended; posterior extremity acute; head very small, without tentacula.

Cliodita fusiformis, Quoy & Gaim. *Ann. Sci. Nat.* 1825, 75, t. 2, f. 3, 4; *Voy. Uranie*, t. 66.

Clio fusiformis, Desh. in Lamk. *Hist.* ed. 2, vii. 427.

Hab. Cape of Good Hope.

3. CLIODITA PYRAMIDALIS.

Body elongate, pyramidal, white, pointed with brown; wings oval; head rounded, two-lobed.

Clio pyramidalis, Quoy & Gaim. *Voy. Astrol.* ii. 371, t. 27, f. 37; *Desh. in Lamk. Hist.* ed. 2, vii. 426.

Hab. Amboina.—Quoy & Gaim.

FAM. VI. PNEUMODERMIDÆ.

Body fusiform. Head with arms furnished with pedicellate suckers. Wings 2, entire, with a central foot-like appendage placed at the base of the head. Gills on the hinder part of the body.

Pneumodermidæ, Gray, *Syn. Brit. Mus.*, 1842, 86, 92; *Proc. Zool. Soc.* 1847, 204.

Pterobranchia, § c, Gray, *Med. Repos.* 235.

Pneumodermi, part, D'Orb. *Moll. Cuba*, i. 70.

Pneumodermes (*Pneumoderma*), Ferussac, *Fab. Syst.* 15, 1821.

Cliodinæ, part, Menke, *Syn.* 5, 1828.

Clionidæ, part, Menke, *Syn.* ed. 2, 9, 1830; Wiegman, *Handb. Zool.* 517 (1842), ed. 2, 545.

Pneumodermitæ (*Pneumodermmites*), Latr. *Fam. Nat.*

Pneumonodermoidæ, Agassiz, *Nomencl.*

Synopsis of the Genera.

1. **PNEUMODERMON.** Gills lobed, at the hinder part of the body.
2. **SPONGIOBRANCHIA.** Gills a prominent spongy ring, near end of body.
3. **TRICHOCYCLUS.** Gills a ciliated ring, round the middle of the body.
4. **PELAGIA.** Gills —? Body transparent, tubercular.

1. PNEUMODERMON.

Gills in a four-lobed leaf at the extremity of the body.

Pneumodermon (Pneumoderme), *Cuvier, Ann. Mus.* 1804, iv. 228; *Reg. Anim.* ii. 38, 1817, ed. 2, 1830; *Lamk. Phil. Zool.* 1809; *Hist. A. S. V.* vi. 293, 1819, ed. 2, vii. 439; *Rang, Man.* 118.

Pneumoderma, *Peron et Lesueur, Ann. du Mus.* 1810; *Gray, Lond. Med. Rep.* 1821; *Blainville, Dict. Sci. Nat.* xxxii. 274, 1824; *Malac.* 483; *Rafin. Anal. Nat.* 1815.

Pneumonoderma, *Agassiz.*

Pneumodermum, *Verany, Cat. A. Invert.* 17, 1846.

Pneumodermis, *Oken, Lehrb. Nat.*

Pneumonodermum, *Herrmannsen, Ind.* 309.

Ægle, *Oken, Lehr. Zool.* 1816 (see *Blainv. Malac.* 55).

Eglæa, "Oken" in *Deshayes, Ency. Meth.* ii. 7 (misprint).

1. PNEUMODERMON CUCULLATUM.

Body oblong.

Pneumoderma Capuchonne, *Peron et Lesueur, Ann. Mus.* 1810, xv. 65.

Pneumoderme, Pneumodermon, *Cuvier, Ann. Mus.* iv. 228, t. 59; *Anat. Moll.*; *Regn. Anim.* ii. 330; *Blainv. Malac.* t. 46, f. 4; *Desh. E. M.* iii. 802.

Pneumodermede de Peron, *D'Orb. Voy. Amer. Merid.* 129; *Voy. Bonite Moll.* t. 14, f. 7, 16.

Pneumoderma Peronii, *Lamk. Hist.* ed. 2, vii. 441; *Quoy et Gaim. Voy. Astrol.* t. 28, f. 1—6?

Hab. Atlantic Ocean.

2. PNEUMODERMON RUBRUM.

Body pupaform, elongated, fuscous; head red; wings very small, somewhat rounded.

Pneumodermon ruber, *Quoy & Gaim. Voy. Astrol.* ii. 389, t. 20, f. 19, 20; *Desh. in Lamk. Hist.* ed. 2, 441.

Hab. Amboina.

3. PNEUMODERMON PELLUCIDUM.

Body cylindrical, turbinated, elongated, soft; head with very small rounded wings.

Pneumodermon pellucidus, *Quoy & Gaim. Voy. Astrol.* ii. 390, t. 28, f. 25.

Hab. Amboina.

4. PNEUMODERMON VIOLACEUM.

Body oblong, violet; suckers large, pedunculated, foot-like; appendages pear-shaped, elongate; fins rounded; whorls moderate; gills 2-lobed, quadrangular.

Pneumodermon violaceum, *D'Orb. Voy. Am. Mer. Moll.* 129, t. 9, f. 10—15.

Clio capensis, *Rang, Ann. Sci. Nat.* vi. 1825, 286, t. 7, f. 3, 4; *Desh. in Lamk. Hist. A. S. V.* ed. 2, vii. 426.

Hab. South Ocean.

2. SPONGIOBRANCHIA.

Body fusiform; wings 2, entire, with a foot-like appendage; gills in a prominent spongy ring, on the end of the body.

Spongiobranchea, *D'Orb. Amer. Merid.* (1840), 132, t. 9, f. 1; *Moll. Cuba*, i. 70, 1841.

Spongobranchia, *D'Orb. Paleon. Franc. Cret.* ii. 1842; *Gray, Syn. Brit. Mus.* 1842, 92.

1. SPONGIOBRANCHIA AUSTRALIS.

Body elongate, violet-brown; head rounded; mouth white; proboscis elongate, with two acute appendages; suckers 6, nearly sessile, on a long appendage; foot acute; fins oblong, striated; whorls spotted.

Spongiobranchea australis, *D'Orb. Voy. Amer. Merid.* 132, t. 9, f. 1, 6.

Hab. Atlantic Ocean, near Falkland Islands.

2. SPONGIOBRANCHIA ELONGATA.

Body very much elongated, fusiform, pointed behind, brown-violet ; head narrow ; mouth white, with long appendages ; fins round, white, small ; gills white.

Spongiobranchea elongata, *D'Orb. Voy. Am. Mer. Moll.* 132, t. 9, f. 8, 9.

Hab. Atlantic Ocean.

3. TRICHOCYCLUS.

Head produced, conical, with two lateral tentacles.—*Body* elongate ; fins 2, oblong, lateral, with a lanceolate intermediate lobe ; gills in a ciliated ring round the middle of the abdomen, and with a similar ring round the base of the head and on the hinder end of the body.

Trichocyclus, *Eschsch. Isis*, 1825, 735, t. 5, f. 4 ; *Menke, Syn.* ed. 2, 9 ; *Gray, Syn. B. M.* 1842, 86, 92 ; *Proc. Zool. Soc.* 1847, 204.

1. TRICHOCYCLUS DUMERILII.

Body oblong, cylindrical, truncate ; fins broad, rounded. Length 1 line.

Trichocyclus Dumerilii, *Eschsch. Isis*, 1825, 735.

Hab. South Sea.

4. PELAGIA.

Animal gelatinous, rough, transparent.—*Body* oval elongate, contracted in the middle ; head indistinct, with two small tubercles ; mouth hidden ; fins 2, lateral, at the contraction of the body ; vent at the base of the right fin ; nerves very apparent.

Pelagia, *Quoy & Gaim. Voy. Astrol.* ii. 392, 1832, not *Peron & Lesueur*, 1809, nor *Lamx.* 1821 ; *Menke, Zeitsch. f. Malak.* 1844, 42.

1. PELAGIA ALBA.

Body elongate, fusiform, white-netted, rough ; fins submedial, rounded, striated.

Pelagia alba, *Quoy & Gaim. Voy. Astrol.* 392, t. 27, f. 7—9.

Hab.

FAM. VII. CYMODOCIDÆ.

Body divided into two parts. Wings 4, two on each side, at the junction between the head and abdomen, with a foot-like appendage. Gills — ?

Cymodoceadæ, *Gray, Syn. Brit. Mus.* 1840 ; *Proc. Zool. Soc.* 1847, 204 ; *Agassiz, Nom.*

Pneumodermidæ, part, *D'Orb. Moll. Cuba*, i. 70, 1841 ; *Pal. Franc.* ii. 1842.

Cymodoceidæ, *Gray, Syn. B. M.* 1848, 88.

1. CYMODOCEA.

Character of the family.

Cymodocea, *D'Orb. Voy. Amer. Merid.* 133, t. 9, f. 16, 17 ; *Moll. Cuba*, i. 70, 1841 ; *Pal. Franc.* ii. 1842, not *R. A. Salisbury*.

1. CYMODOCEA DIAPHANA.

Body elongate, diaphanous, translucent, showing the violet viscera ; fins, upper pair broad, ovate, lower edge thickened, lower pair narrow, digitated ; medial appendage elongate, angular, nearly at the tip,

Cymodocea diaphana, *D'Orb. Voy. Amer. Merid.* 133, t. 9, f. 16, 17.

Hab. Atlantic Ocean.

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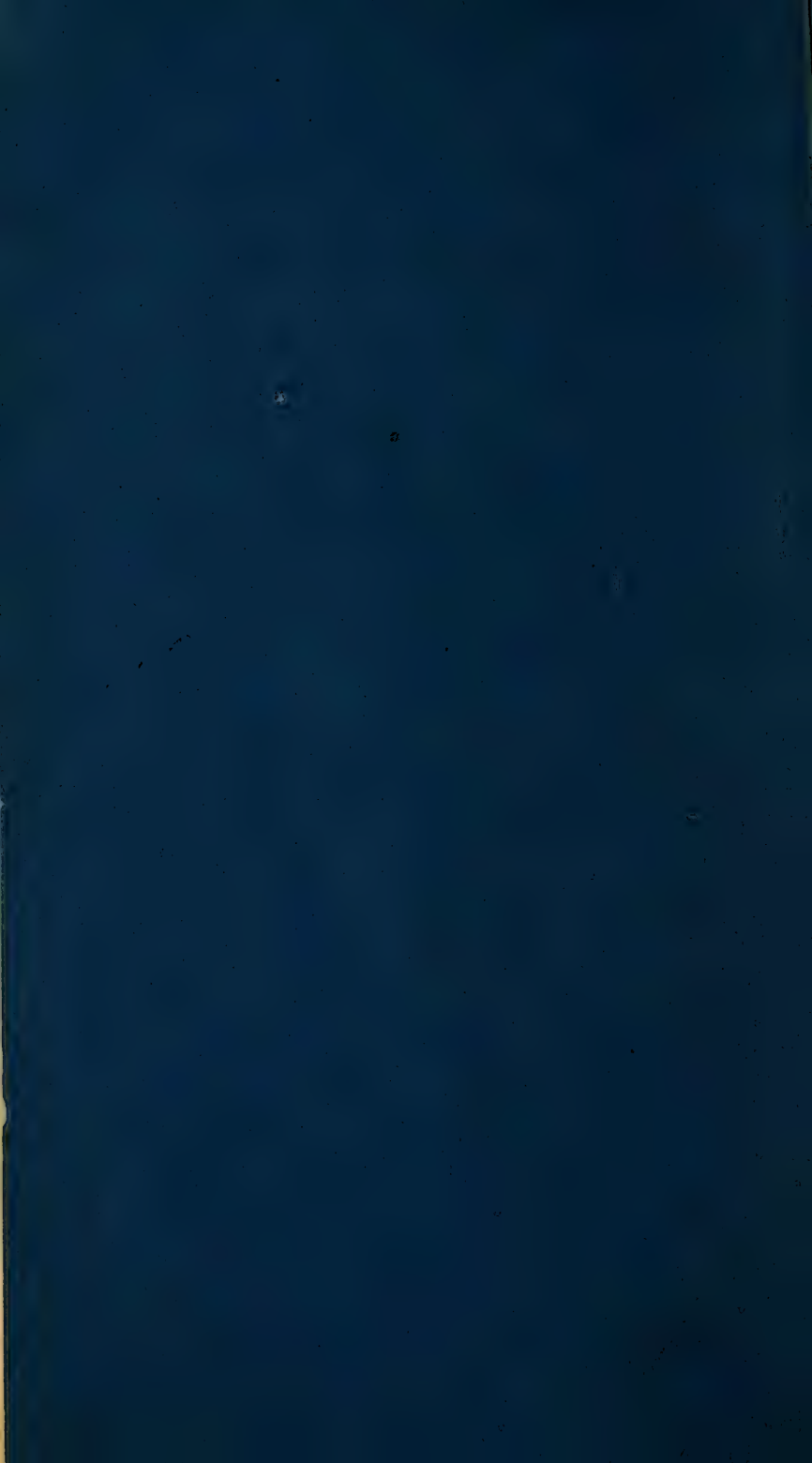
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